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ABSTRACT

The Georgia Prekindergarten Program was established in 1993 to provide the state's 4-year-olds with high-quality preschool experiences. Beginning in the 1996-1997 school year, a sample of 3,639 children enrolled in 1 of 203 randomly selected Georgia prekindergarten classes was selected for a 5-year longitudinal study. The study examined how differences in children's prekindergarten experiences and their experiences during primary school influenced their success in school, and is not considered an estimate of the overall impact of prekindergarten on the children or their families. This final report on the study details: (1) characteristics of the children and their families and trends in their schooling; (2) factors contributing to grade retention; and (3) factors contributing to third grade students' standardized test scores. Among the major findings noted in the report is that program auspice, preschool curriculum used, and teacher qualifications did not systematically affect grade retention rates or third-grade test scores of children who reach third grade on schedule. There was no clear-cut evidence that any approved curriculum was more effective than another. Approximately 15 percent of children were retained at least once by their fourth year of primary school. Compared to teachers, nearly twice as many parents (over 80 percent) expected their children to graduate from college or graduate school. Parents' satisfaction with their children's schools decreased each year of the study. According to teachers' assessments, children's academic, social, and communication skills peaked in the first grade, and then declined through the second grade. More children were enrolled in large classes during kindergarten than in any other year. The report's three appendices describe the study sample, including results of efforts to locate children for Year 5; methods used to categorize the student outcome measures; and the statistical methods used. (Contains 28 references.) (KB)

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Georgia Pre-K Longitudinal Study: Final Report 1996-2001

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Executive Summary

Georgia Pre-K Longitudinal Study: Final Report 1996-2001

In 1996, the Office of School Readiness commissioned a longitudinal study of the effectiveness of Georgia's Prekindergarten (Pre-K) Program in preparing four year-olds to be successful in school. The purpose of this study is to understand how differences in children's Pre-K experiences and their experiences during primary school influence their success in school. This executive summary presents the major findings from the fifth and final year of the study conducted by the Applied Research Center at Georgia State University. The full report provides details of the findings and the methods used in the study.

Findings

1. Georgia's Pre-K policies allow both local schools and private organizations to operate Pre-K programs, centers to choose which approved curriculum they will use, and Pre-K providers to employ teachers with different types of credentials and education. The flexibility on these aspects of program operations does not systematically affect retention rates or third grade test scores for children who reach third grade on schedule.

2. The study does not provide clear-cut evidence that any approved curriculum is more effective than any other. However, evidence suggests that two of the curricula (Journey and Once Upon a Time) may yield lower retention rates, but because too few high-risk children in the study were enrolled in centers using these curricula, it is impossible to know whether these curricula would have affected the retention of high-risk students. For students who were not retained, the High/Scope curriculum appears to have increased the performance of high-risk students on third grade tests. However, the High/Scope curriculum did not appear to have resulted in higher test scores for all children in classes that used the curriculum.

3. Approximately 15 percent of the children were retained at least once by their fourth year of primary school.

4. Compared to teachers, nearly twice as many parents (over 80 percent) expected their children to graduate from college or graduate school. Parents' satisfaction with their children's schools decreased each year of the study.

5. According to teachers' assessments of their students, the children's academic, social and communication skills peaked in the first grade and then declined through the second grade. It is not clear if this represents a lack of readiness on the part of some schools to build on the children's skills developed during Pre-K, a decline in students' performance, or higher expectations on the part of teachers in later grades.

6. More children were enrolled in large classes during kindergarten (43 percent in classes of 23 or more students) than in any other year. By 2000-2001, the average class size had decreased to 20 students per class and only one-fifth were in classes of 23 or more.

These findings are based on an initial probability sample of 3,639 children who participated in Pre-K during 1996-1997 and who, for the most part (85 percent), were in regular third-grade classes during 2000-2001. The findings are drawn from analyses of teachers' ratings of their students' skills and abilities as well as teacher and parent surveys. The Georgia Department of Education provided standardized test results and student record information for this report.

For a copy of the final report and earlier reports, see the Andrew Young School of Policy Studies web site (http://www.gsu.edu/) or contact the principal investigator at:

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Georgia Pre-K Longitudinal Study: Final Report 1996-2001

Introduction to the Prekindergarten Longitudinal Study

The Georgia Prekindergarten Program was established in 1993 to provide Georgia's four year-old children with high quality preschool experiences. This educational initiative, funded by the Georgia Lottery for Education, currently serves over 63,500 children each year. The goal for the Georgia Prekindergarten (Pre-K) Program is to provide young children with the learning experiences they need in order to be ready for kindergarten and primary school and to enhance the cognitive and social development of the children.

Beginning in the 1996-1997 school year, the researchers in the Andrew Young School of Policy Studies at Georgia State University began following 3,639 children who were enrolled in one of 203 randomly selected Georgia lottery-funded Prekindergarten classes located throughout the state of Georgia. In order to ensure a broad representation of the types of Pre-K classes that four year-olds might attend, the researchers selected Pre-K classes so that all regions of the state were included, the most popular curriculum types were represented in the sample, and all types of Pre-K service providers (private for-profit, not-for profit, local school system) were included. These factors as well as many others could have influenced the development of the children attending Pre-K. The overall purpose of this study was to examine the ways in which differences in Pre-K services and elementary schooling impacted school success for the children who attended Pre-K. The study cannot be used to estimate the overall impact of Pre-K on the children or their families. In 2001, the Office of School Readiness sponsored another study by the Andrew Young School of Policy Studies to assess the differences in the children who attend various types of preschools, including Georgia Pre-K and Head Start, and to report on the gains made by these children.

In 2001-02, project researchers completed the final data collection for the longitudinal study of the Georgia Pre-K program, which began in 1996-97. This report documents the methods and findings from Pre-K through the children's first four years in primary school. The Office of School Readiness (OSR) funded the study, which has been known as the Georgia Prekindergarten Longitudinal Study (GPKLS). GPKLS researchers followed the sample of Pre-K children through their elementary school years gathering information from parents, teachers, and principals on the children and their instructional and developmental experiences. In addition to these sources of information, during the final year of the study, researchers collected information on the children's placement in 2000-01 as well as standardized test scores for all of the children who attended third grade that year.

Two purposes were considered central for this study. First, the study was conducted to document the progress of Pre-K participants during their primary school years. Second, the study set out to examine the ways in which differences in Pre-K services received by four year-olds affect their school progress and success. In this year's report, differences in teacher quality, as measured by credentials and years of experience, teachers' beliefs and practices, and type of curriculum used in Pre-K classes are analyzed. In addition, effects of the type of organization delivering Pre-K services are examined. Evidence of impacts is traced in teachers' ratings of students' social behaviors and communication skills scores and on standardized tests in language arts, math, science, and social studies. The effects of program variations on retaining students during their primary years are tested, also. In addition, a variety of characteristics of their teachers as well as their parents' opinions about the children's education are presented.

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Study questions that guided the development of this report were:

1. What are the characteristics of the children who have been included in the study?
2. What are the characteristics of their primary school education, their teachers, and their families?
3. What trends were evident in their teachers and instruction?
4. What characteristics of their Pre-K experiences influenced their teachers' ratings of their performance, third grade test scores, and promotion to third grade on time?

Answers to these questions presented in this year's report can inform efforts to improve the effectiveness of Pre-K services and raise issues for consideration by elementary grade teachers as well as Pre-K and elementary school administrators across Georgia.

Sources of Information. An important source of information throughout this study has been teachers' ratings of their students' performance on academic work as well as behavior and communications. During the Pre-K year (1996-1997), teachers completed two rating forms, one in the fall and one again in the spring, rating the children in a number of critical areas: pre-academic development (e.g. Language Arts and Math); social-behavioral skills; communication skills; and educational attainment. We relied upon teacher ratings of the children for two reasons. First, the cost and logistics of directly assessing over 3,000 children twice a year were considered daunting. Second, teacher ratings have been found to be a major factor in the educational attainment of children and in the determination of the assignments into classes and groupings within classes that could affect the children's success in school (Entwisle & Alexander, 1993; Entwisle & Hayduk, 1988).

However, we did not solely rely on teacher assessments of the children. For the first time in the study, we analyzed impacts on independent assessments of the children's performance, third grade standardized test scores (Stanford 9) and grade retention. Grade retention is believed to have both a detrimental impact on individual students as well as significant social and economic costs to the states, which must expend resources for students to repeat the same grade in the subsequent year. In each year subsequent to the Pre-K year (1996-1997), the children were followed into their next class. For children progressing normally, the children were enrolled in kindergarten in the 1997-1998 school year, first grade in 1998-1999, second grade in 1999-2000 and third grade in 2000-2001. The study found that 85 percent of the children entered the third grade on schedule. This figure cannot be directly compared with state data on retentions since we examined children over five years and the state data only includes students retained in a specific year, some of whom may be retained more than once during their early school years.

We gathered information on a number of factors that might influence the development of children. First, each year, we asked teachers to complete a detailed Teacher Survey that covered their education, credentials, beliefs and practices, classroom characteristics, perceived influences on their pedagogical approach and satisfaction with a number of job-related issues. Second, at the end of each school year, we surveyed the parents of the children in the study. Finally, parents were asked about the level of satisfaction with their child's school, their expectation for their child's educational attainment, their child's health and disposition, and general demographic and socio-economic information that may bear on educational achievement.

Report Organization. This fifth year GLPKS report is organized into three chapters. In the first chapter, we report on the characteristics of the children, their families and trends in their schooling.

The first chapter has four sections:

1. description of the student sample;

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2. overview of the teachers' characteristics and experiences, including teachers' credentials, attitudes, and beliefs and practices, as well as teachers' responses about classroom behavior issues;
3. description of parents' rating of their children, their opinions about their education, and the children's family characteristics; and
4. report on the teachers' ratings of the children from Pre-K through the third grade.

The second chapter focuses on another very important measure of children's success with school – retention. In analyzing the factors that might lead to grade retention, we use children's characteristics and family background as well as differences in Pre-K and primary school. Previous research indicates that grade retention may lead to higher rates of high school drop-out and lower academic outcomes. In this chapter, we include our entire sample with whom we were able to maintain contact and who were enrolled in Georgia public schools in 2000-01, regardless of grade placement.

The second chapter has four sections:

1. retention patterns from kindergarten through third grade;
2. background and family characteristics that may affect retention;
3. the influence of differences in Pre-K services on student retention; and
4. the influence of differences in children's primary schooling on student retention.

In the third chapter, we focus on the analysis of the students' standardized test scores (Stanford 9) in language arts, math, science, and social studies. The analysis only includes children who were enrolled in the third grade (on grade level) within Georgia public schools in 2000-01. The analysis involves four sets of variables: standardized scores from third grade tests; teachers' ratings of school readiness, skills and behaviors from Pre-K through third grade; background characteristics of the children and their families, including risk factors; and Pre-K program characteristics that vary from site to site.

The third chapter has three sections:

1. children's background and family characteristics that may affect children's standardized test scores;
2. the effects of differences in Pre-K services on standardized test scores; and
3. the effects of differences in Pre-K services on teachers' ratings of school readiness, skills, and behaviors.

In addition to the three chapters included in the report, three appendices describe:

1. the sample for the study, the results of efforts to locate the children for the fifth year, and the weighting procedures covering both design and non-response weighting;
2. the methods used to categorize the student outcome measures - academic, social-behavioral and communication;
3. the statistical analysis methods used in this year's report.

In this report, sample sizes vary based on the completed information received from teachers and parents. Unless otherwise noted, all findings are reported for the entire sample for which data is available regardless of whether they had progressed on time into a third-grade classroom. In other words, the outcomes are reported for students who have progressed into the third grade as expected, as well as those who were held back or received special assignments. This allows the most complete and accurate assessment of the progress of the children in Pre-K during 1996-1997. The major exception to this is in Chapter 3 where only children who are in the third grade were included in the analysis of standardized test scores.

Results from each of the first four years of the evaluation are available by accessing the Andrew Young School of Policy Studies' web page at *www.gsu.edu*.

Chapter 1
Students, Parents, and Schooling Trends

Subsection A - Description of the Student Sample

In this chapter, we report findings through the fifth and final year of the Georgia Pre-K Longitudinal Study. Unlike the previous reports, in this report we present trends, some of which span all five years of the study. The children in the study attended one of 203 randomly selected Pre-K sites in 1996-1997. Since then, the researchers at the Andrew Young School of Policy Studies followed the children as they matriculated into kindergarten and early elementary grades. In the 2000-2001 school year, most of the children (85 percent) were enrolled in the third grade.

Data collection efforts for the fifth year of the evaluation began by attempting to locate the 3,639 children from the original Pre-K sample of 203 classrooms. A considerable amount of time and effort each year was spent on locating the 3,639 children who were part of the study (for a full description of the efforts to locate the children, see Appendix A). The study team would not have been able to locate so many of the children without the assistance of countless teachers, principals, school secretaries, central office personnel, superintendents, and school board members. We greatly appreciate their willingness to support the study.

Throughout the 2000-2001 school year, we located approximately 3,000 students in over 2,100 classrooms (see Table 1.A.1). Of the approximately 600 students we could not follow, we were able to determine that approximately 35 percent either moved out of state, were home-schooled or died. The students who were determined to have moved from Georgia were dropped from the study, but we are not sure how many additional students that we could not locate had actually moved from the state. We did attempt to relocate children if they moved back into the state. Because teacher-completed student rating forms were an integral part of our data collection, children who were home-schooled had to be dropped from most analyses. We did collect parent interviews from a number of parents who home-schooled their children. We believe that a significant number of the children we could not locate may be home-schooled. Of the children eligible to remain in the study, we were able to successfully locate and follow about 88 percent of the sample across the five years of the study. This study's location rate seems to be as good or better than other similar studies that have provided such data (Peisner-Feinberg, et al. 1999; Reynolds 2000).

Table 1.A.1: Status of Original Sample of Children

Status for 2000-2001	
Children Located	3,001
Deceased, Refusals	17
Out-of-State	201
Home-schooled	19
Unknown	401
Total	**3,639**

In their Pre-K year (1996-1997), the original sample of children received educational services in one of 203 randomly sampled classrooms located throughout the state. Each year, the 3,639 children dispersed into an ever greater number of elementary grade classrooms (Table 1.A.2). The total number of 3,001 children located in the fifth year includes any child who was confirmed in a classroom within the state of Georgia during 2000-2001. This number fluctuated throughout the project year as children moved out of the state or transferred to other schools

within the state. In addition, there are an unknown number of children who may be home schooled and are no longer traceable through the school systems. In the final year of the study, from the original 203 classes, the 3,001 children who were located attended 2,105 different classes.

Table 1.A.2: Number of Classrooms Attended by Study Participants

	Classes
Year 1- 1996-1997 (Pre-K)	203
Year 2- 1997-1998 (Kindergarten)	1,655
Year 3- 1998-1999	1,845
Year 4- 1999-2000	2,003
Year 5- 2000-2001	2,105

During the 1996-1997 Pre-K year, the majority of the children attended Pre-K classes that were not part of a local school system (57 percent). Parents could register their children in a for-profit, a not-for-profit or Head Start center that was part of the Pre-K system, or in a local school that offered Pre-K (see Table 1.A.3). Private for-profit providers include organizations that are a part of national chains. Governmental non-profit include Pre-K sites located on military bases. The private not-for-profit included Pre-K sites at religious institutions as well as other community institutions. Head Start centers may offer Head Start and Pre-K classes within the same site. In subsequent years, virtually all of the children (98 percent) attended a public school.

Table 1.A.3: Type of Organization That Provided Pre-K Services

Organization Type (n = 203)	Percent of Children (n = 3,[illegible])
Local School System	42.6%
Private for-profit	46.7%
Governmental non-profit	1.9%
Private not-for-profit	3.7%
Head Start	5.0%

The sample for which outcome information was collected has slightly more females than males. Most of the children for whom we received data are white, non-Hispanic (50 percent), followed by black, non-Hispanic children who made up 39 percent of the sample (see Table 1.A.4). Slightly more than four percent of the children are Hispanic. Asian, Pacific Islander, American Indian and multiracial children each represent less than four percent of the sample. In subsequent analyses, we report findings separately for whites, blacks, and Hispanics and combine all other minorities into an "Other minority" category.

Table 1.A.4: Race of Children

Racial/Ethnic Composition (n = 3,001)	Percent of Children
White, non-Hispanic	50.2%
Black, non-Hispanic	39.3%
White, Hispanic	4.2%
Black, Hispanic	0.3%
American Indian	0.1%
Asian, Pacific Islander	3.1%
Multiracial	2.3%
Other	0.7%

Teachers reported that most children would enter the fourth grade in the subsequent year. As Table 1.A.5 shows, approximately 83 percent of the children are expected to progress on grade level in the 2002-2003 school year. Somewhat less than ½ of one percent of children are expected to be placed one grade level ahead and there are some children who may be ahead two or more grade levels. Eleven percent of the children are expected either to be retained in the third grade or promoted to the third grade after having been previously retained. Approximately one percent of the sampled children have been retained two years by 2001-2002. About two percent of the children are enrolled in special education programs and another three percent are enrolled either in other grades, special programs or the placement recommendation is uncertain.

Table 1.A.5: Predicted Placement of Students for the 2002-2003 School Year

	Percent of Children
Second Grade	0.7%
Third Grade	10.8%
Fourth Grade	82.6%
Fifth Grade	0.4%
Other Grade	3.4%
Special Education	2.1%

Teachers were asked to report if the sampled children were placed in an English as a Second Language class, if the children were discussed at a Student Support Team meeting or had an Individualized Education Plan created. As Table 1.A.6 shows, about four percent of the children were in English as a Second Language classes, about 25 percent were discussed at a Student Support Team meeting and 18 percent had Individualized Education Plans. Specific information on the reasons for referring children to the support meetings may be found in Subsection D.

Table 1.A.6: Other Placement Information

	Percent of Children Placed In or Considered for Special Programs
English as a Second Language	3.9%
Student Support Team	24.7%
Individualized Education Plan	18.2%

Subsection B - Description of the Teacher Surveys

In order to understand how Pre-K and the children's subsequent educational experiences were affecting their development, the GPKLS study collected descriptive information about classrooms and teacher characteristics from 1996-1997 through 2000-2001. Of the 2,105 teachers who were mailed the teacher survey in the third grade year, 1,579 teachers completed and returned it. This resulted in a response rate of 74 percent.

Each year, teachers were asked to complete a survey that included questions on their teacher credentials and work experience. Approximately 88 percent of Pre-K teachers reported having a minimum of a Bachelor's degree, and 10 percent reported having a graduate degree (see Table 1.B.1). In the early elementary grades, virtually every teacher reported having at least a Bachelor's degree and approximately one-half of the teachers reported having completed a graduate program.

Table 1.B.1: Teacher's Highest Level of Education

	Pre-K Only 96-97	Kinder. Only 97-98	98-99	99-00	00-01
High School Graduate	4.1%				
Associate Degree		0.2%		0.1%	0.1%
Some College	8.0%	0.4%	0.2%		0.1%
College Graduate	61.6%	27.7%	33.6%	30.5%	33.6%
Some Graduate School	16.6%	18.6%	17.8%	16.8%	16.5%
Professional or Graduate Degree	9.7%	53.1%	48.5%	52.6%	49.8%
Minimum Bachelor's Degree	87.9%	99.4%	99.9%	99.9%	99.9%

Approximately 82 percent of the Pre-K teachers held either or both an Early Childhood Education or Elementary Education certificate (see Table 1.B.2). Another eight percent had a Child Development Associate certificate while six percent had a Montessori certificate. One percent of the Pre-K teachers were degreed, having completed their Bachelor's degree but did not hold a certificate in early child education. We could not ascertain the type of degree or certification held for two percent of the teachers. From the kindergarten year (1997-1998) on, all of the teachers held either or both an Early Childhood Education and Elementary Education certificate or held some other type of certification (e.g. Special Education).

Table 1.B.2: Teacher's Credentials

	96-97	97-98	98-99	99-00	00-01
Insufficient Information	1.8%				
CDA	8.3%				
Montessori	6.2%				
Degreed	1.4%				
Early Childhood Education		75.8%	67.5%	55.0%	43.0%
Elementary Education		7.4%	24.1%	21.5%	20.9%
Both Early Childhood & Elementary Education	82.4%	10.4%	8.4%	20.9%	32.0%
Other		5.8%		2.6%	4.2%

The overwhelming majority of teachers who completed the teacher survey were female (see Table 1.B.3). About 67 percent of the Pre-K teachers indicated that they were white, while over 80 percent of kindergarten and elementary grade teachers reported that they were white. There was a corresponding decrease in the number of African-American teachers. About 27 percent of Pre-K teachers reported being African-American, whereas in elementary school, reported percentage of African-American teachers averaged around 16 percent. Teachers from all other backgrounds constituted less than 1 percent for all the years of the study, except in the Pre-K

classes, when 1.4 percent of teachers reported being Hispanic and another 3.3 percent reported being multi-racial. Teachers were asked to report the number of years teaching and the number of years teaching at the present grade level. Pre-K teachers reported having the least experience teaching the current grade, four years. Since Pre-K was relatively new, this would be expected. Kindergarten teachers reported having the most experience teaching the current grade level, just over nine years. Teachers each subsequent year reported having less teaching experience. The average level of experience fell to eight years in the first and second grade years and fell to seven years in the third grade year (2000-2001).

Table 1.B.3: Teachers' Demographics

	96-97	97-98	98-99	99-00	00-01
percent Female	97.2%	*	99.0%	98.3%	97.1%
White	67.4%	*	83.3%	82.0%	81.0%
Black/African American	27.2%	*	15.6%	16.7%	17.0%
Asian, American Indian	0.7%	*	0.3%	0.4%	0.3%
Hispanic	1.4%	*	0.5%	0.4%	0.9%
Multi-racial	3.3%	*	0.4%	0.6%	0.8%
Number of Years Teaching	*	*	*	13.2	13.0
Number of Years Teaching Current Grade	4.2	9.2	8.2	7.7	6.6

** Data not collected.*

We asked teachers to estimate the average number of hours invested by parent volunteers and paid para-professionals in the class per week (see Table 1.B.4). All Pre-K classes were required to have a para-professional in the class full-time. During the kindergarten year, most classes had a para-professional full-time. By the end of the third grade year (2000-2001), the average hours per week that para-professionals were in the class dropped to just over three hours. Parent volunteer rates also declined over time. In total, parents averaged slightly more than 7 hours per week per classroom when their children were in Pre-K. However once their children entered kindergarten, the average for all parents combined was under two hours per week in the class. By the third grade year (2000-2001), teachers estimated that they received less than an hour per week of volunteer time in their classrooms from parents.

Table 1.B.4: Average Hours for Volunteer and Para-professionals in the Classroom

	96-97	97-98	98-99	99-00	00-01
Parent Hours Volunteering	7.1	1.7	1.5	1.2	0.9
Para-professionals	32.5	29.4	14.6	8.2	3.3

OSR requires that Pre-K class sizes not exceed 20 without special approval and should be no smaller than 16. In the sampled Pre-K classes, the average class size was about 18 (see Table 1.B.5), though there were a couple of classes that exceeded the limit of 20. Over one-third of the classes had 17 or fewer children in them. Kindergarten class sizes were reported to be the largest, averaging almost 22 children per class. However, most kindergarten classes had full-time para-professionals decreasing the student-teacher ratios. Over 88 percent of the kindergarten children were in classes of 18 or more and over 40 percent had class sizes of 23 or more. In the elementary grade years, class sizes averaged between 20 and 21. The number of children in classes with 17 or fewer averaged less than 20 percent of all classes. Somewhat surprising is that kindergarten had the largest percentage of classes with 23 or more children.

Table 1.B.5: Class Size

	96-97	97-98	98-99	99-00	00-01
Number of Children in Class	**17.9**	**21.7**	**20.7**	**20.8**	**20.0**
Percent of Classes with					
17 or fewer children	35.4%	11.8%	16.9%	14.6%	19.2%
18-22 children	64.0%	45.0%	56.4%	54.2%	60.2%
23 or more children	00.4%	43.2%	26.7%	31.1%	20.5%

Each year, approximately two to three children transferred in and two to three children transferred out of the classes. We also looked at turnover in the classes that had the highest levels of transfers. We anticipate that classes with the highest levels of transfers are going to be adversely affected by the high numbers of transfers since the teacher needs to spend greater amounts of class time to integrate the new children into class. The classes that ranked in the top ten percent of transfers each year experienced between seven and eight children transferring out and between seven and nine children transferring in during the school year.

Table 1.B.6: Total Transfers Into and Out of the Class

	96-97	97-98	98-99	99-00	00-01
Number of Students Transferring **out of** Class during Year	*	2.9	*	2.3	2.4
Number of Students Transferring **out of** Class during Year (Highest 10%)	*	8.3	*	6.8	7.9
Number of Students Transferring **into** Class during Year	*	3.0	*	2.4	2.6
Number of Students Transferring **into** Class during Year (Highest 10%)	*	8.5	*	6.9	9.0

**** Data not collected.***

About 48 percent of Pre-K teachers reported that they spent no more than a few minutes on discipline. During the elementary grade years, this percentage varied from a low of 36 percent in the first grade year (1998-1999) to a high of 46 percent during the third grade year (2000-2001). This suggests that most teachers spend less time each year on discipline. The percentage of classes spending more than 30 minutes a day on discipline was lowest in Pre-K (16 percent), rose to 36 percent in the first grade (1998-1999) and fell about 27 percent by the third grade (2000-2001). We also asked the teachers to report the number of children who were regularly disruptive. Each year, the teachers reported about three children as being regularly disruptive, though in the first grade year (1998-1999) the number increased slightly to about four. Since we were concerned that disruptive children might negatively influence the amount of time that teachers can spend on instruction, we estimated the number of disruptive children in the most disruptive classes, defined as the classes with the 10 percent highest level of disruptive children. In the Pre-K year, in the most disruptive classes, six children were considered disruptive. In the elementary grades, this number rose to between eight and nine, which meant that teachers in these classes reported that over 40 percent of the entire class was regularly disruptive.

Table 1.B.7: Discipline and Behavior Issues in the Classroom

	96-97	97-98	98-99	99-00	00-01
Number of Children Regularly Disruptive	3.1	*	3.7	3.4	3.2
Most Disruptive 10% (# of children)	6.2	*	8.7	8.6	8.4
Amount of Time on Discipline					
No Time	0.6%	*	0.4%	0.4%	1.6%
A Few Minutes	47.0%	*	35.1%	39.6%	44.7%
About 30 min.	36.3%	*	29.0%	27.8%	26.8%
30 min. to 1 Hour	9.3%	*	19.2%	21.1%	16.2%
1 Hour or More	6.8%	*	16.3%	11.1%	10.7%

**** Data not collected.***

We asked teachers in kindergarten and the later years to report the amount of flexibility they had in deciding or changing the curriculum that was used in their class (see Table 1.B.8). Kindergarten teachers (1997-1998) and teachers of children in the third grade year (2000-2001) reported more flexibility than teachers in the first (1998-1999) or second (1999-2000) grade year. Almost two-thirds of the kindergarten and third grade year teachers said they had significant control (much or very much) over the curriculum, while about one-half of the teachers in the first and second grade year said they had significant control over the curriculum.

Table 1.B.8: Curriculum Flexibility

	96-97	97-98	98-99	99-00	00-01
Almost None	*	2.4%	6.5%	5.6%	3.0%
Slight	*	4.5%	9.2%	8.2%	5.1%
Some	*	27.8%	35.2%	32.4%	28.2%
Much	*	30.6%	26.1%	29.8%	30.8%
Very Much	*	34.7%	23.0%	23.9%	32.8%

****Data not collected***

Starting with the first grade year (1998-1999), teachers were asked to rate their levels of satisfaction for several aspects of their jobs (see Table 1.B.9). The levels of satisfaction were on a scale of 1 to 5, where 1 indicated that teachers were 'very unsatisfied' with an aspect of their job and 5 meant that they were 'very satisfied' with an aspect of their job. Teachers were found to be most satisfied with their co-workers, the nature of their work, the safety of their respective school environments and the intellectual challenges that their jobs provided. Each of these items received ratings that generally exceeded 4.0. On the other hand, teachers expressed the most dissatisfaction with the salaries they received, the motivation and discipline levels of the students in their class, and parental support of and participation in the education of their children. These items generally received ratings below 3.2. The overall satisfaction expressed by teachers remained high at around 4.0 in all the three grades of elementary school.

Table 1.B.9: Job Satisfaction (5 point scale with 5 as highest level of satisfaction)

	98-99	99-00	00-01
Coworkers	4.3	4.2	4.2
Nature of the work	4.3	4.2	4.1
Safety of School Environment		4.0	4.0
Intellectual Challenge		4.0	3.9
Supervisors	3.8	3.9	3.9
General Working Conditions		3.8	3.8
Opportunities for Promotion and Professional Development	3.5	3.7	3.7
Autonomy in Classroom		3.7	3.6
Availability of Resources and Materials		3.6	3.6
Class Size		3.3	3.4
Process for Evaluating Teachers		3.5	3.4
Student Motivation		3.3	3.1
Student Discipline		3.1	3.1
Parental Support		3.1	3.0
Salary	3.1	2.9	2.8
Overall Satisfaction	**4.1**	**4.0**	**3.9**

There are a number of influences on teachers that determine how the teachers carry out their instructional responsibilities (see Table 1.B.10). Starting in the kindergarten year (1997-1998), we asked teachers to rate, on a seven point scale, how influential different people and policies were on their teaching style and abilities. Principals, curriculum, school system policies, parents and teachers of the subsequent grade level all received average ratings of at least a five on the seven point scale. These may be considered to be the most influential factors in determining what the teacher may do in the classroom. The lowest ratings, with an average of approximately four, were given to standardized tests including national tests (e.g. Stanford 9) and the new Criterion-Referenced Curriculum Test.

Table 1.B.10: Influences on the Teachers (Seven point scale with 7 as very influential)

	97-98	98-99	99-00	00-01
Principal	5.2	5.8	5.7	5.8
Curriculum	6.3		5.6	5.7
School system policy	5.9	5.6	5.2	5.3
Parents	4.2	5.2	5.0	5.0
Standardized Tests (Stanford 9, ITBS)	4.5	4.6		4.4
Criterion-Referenced Curriculum-Based Tests (CRCT)			4.3	4.3
Other teachers of Same Grade Level	5.3			5.6
Other teachers of One Grade level Higher	4.5	5.6	5.4	4.7

Throughout the study, substantial information was gathered about the teacher's approach to educating young children. The National Association for the Education of Young Children (NAEYC) outlines guidelines for implementing practices within an early childhood classroom that are developmentally appropriate for young children (Bredekamp & Coppel, 1997). These guidelines suggest that child-centered classrooms in which activities are hands-on, organized around the interests of the child, and facilitated by the teacher are conducive to the emotional and cognitive development of young children. Research suggests that classrooms that follow these guidelines for developmentally appropriate practices are more likely to foster healthy learning and development for young children than classrooms that use didactic, teacher-directed activities (Clarke-Stewart & Gruber, 1984; Cost, Quality & Child Outcome Team, 1995; Howes & Olenick, 1986; McCartney, 1984; and Phillips & Howes, 1987). Two instruments were included in the teacher survey to measure the teachers' approach to educating young children,

the teachers' beliefs and practices which will be discussed in the next sub-section and the instructional activities scale which will be discussed later.

The Instructional Activities Scale (IAS) was used to measure the frequency with which thirty-four instructional activities occur within a classroom (Buchanan, Burts, Bidner, White, & Charlesworth, 1998). The IAS includes activities that are considered by early childhood experts as more appropriate and less appropriate for young children. Starting in the first grade year (1998-1999), teachers rated the frequency of each activity in their classrooms on a five-point scale that read as: almost never/less than monthly (1), rarely/monthly (2), sometimes/weekly (3), regularly/2-4 times per week (4), very often/daily (5). For each of the 34 items, the means by year are reported in Table 1.B.12.

On average, teachers used these activities less frequently over time. However, the averages for two items, taking tests and playing competitive math activities, increased over time.

Table 1.B.12: Instructional Activity Scale

Developmentally More Appropriate Activities	98-99	99-00	00-01
build constructions with purchased and/or recycled materials	2.6	2.0	1.8
select own activities (reading, math, science, writing, etc.)	4.0	3.7	3.1
participate in dramatic activities	2.3	2.1	2.0
listen to recordings of children's literature	3.5	3.3	3.0
do creative writing (combining symbols, invented spelling and drawing, and conventional spelling)	4.4	4.3	4.1
play with games and puzzles	3.9	3.7	3.2
explore life science materials such as animals and plants, and/or physical science materials such as wheels and gears	3.1	3.1	3.1
sing and/or listen to music	3.9	3.7	3.6
move creatively as a planned activity	3.2	3.1	2.9
color and cut freely (only self-drawn shapes or no shapes)	3.5	3.4	3.1
use manipulatives (like pegboards, puzzles, Legos, Unifix Cubes, tangrams, geoboards, base 10 blocks, and/or Cuisenaire Rods)	4.2	3.9	3.6
do phonics activities	4.8	4.7	4.0
read in ability level groups	3.9	3.9	3.7
participate in hands-on projects	4.2	4.1	3.8
coordinate their own activities in centers	3.2	2.9	2.5
play games or do activities directed by or made by parents	1.6	1.6	1.6
participate in multicultural and nonsexist activities	3.4	2.7	2.6
do health and safety activities	3.2	3.2	3.1
draw, paint, work with clay, and use other art media	3.6	3.4	3.2
solve math problems that are incorporated with other subject areas	3.7	3.7	3.6
Activities that are not more or less appropriate	**98-99**	**99-00**	**00-01**
receive tangible reinforcement for appropriate behavior	4.2	3.8	4.0
lose special privileges	3.4	3.2	3.2
receive social reinforcement for appropriate behavior	4.9	4.9	4.9
get placed in time-out	3.0	2.7	2.5
participate in specifically planned outdoor activities	3.4	3.3	3.2
play competitive math activities to learn math facts	3.2	3.4	3.5
Developmentally Less Appropriate Activities	**98-99**	**99-00**	**00-01**
take tests	3.1	3.4	3.5
circle, underline, and/or mark items on worksheets	3.8	3.7	3.6
use flashcards with sight words and/or math facts	4.0	3.8	3.6
participate in rote counting	3.8	3.1	2.8
practice handwriting on lines	4.2	4.0	4.0
color and/or cut pre-drawn forms	3.1	2.8	2.3
copy from the chalkboard	3.7	3.8	3.7
participate in whole class teacher directed instruction	4.7	4.7	4.6

Twenty of these 34 activities are considered to be developmentally appropriate practices (for example, select own activities) while eight of these 34 activities are considered to be developmentally inappropriate practices (for example, take tests). Six activities could not be placed as either developmentally appropriate or inappropriate. Across all years, the rate of using developmentally appropriate or inappropriate practices fell slightly (see Table 1.B.13). The average use of the developmentally appropriate practices fell from 3.5 in the first grade year to 3.1 in the third grade year. This suggests that these developmentally appropriate activities were used sometimes, perhaps as much as one to two times a week. It appears that teachers have a propensity to use developmentally inappropriate activities slightly more often than developmentally appropriate ones. While the average scores for developmentally inappropriate activities fell from 3.8 in the first grade year to 3.5 in the third grade year, the average score was 0.3 to 0.4 higher than the developmentally appropriate activities.

Table 1.B.13: Using developmentally appropriate or inappropriate practices

	Developmentally Appropriate Activities			Items not Related to Either Scale			Developmentally Inappropriate Activities		
	1st G	2nd G	3rd G	1st G	2nd G	3rd G	1st G	2nd G	3rd G
Alpha	0.85	0.86	0.84	0.34	0.42	0.40	0.72	0.71	0.68
Average	3.56	3.33	3.08	3.70	3.62	3.54	3.77	3.65	3.50
Std. Deviation	1.84	0.51	0.48	1.67	0.52	0.51	1.38	0.58	0.56

To understand teachers' beliefs about early childhood education and related practices, teachers completed The Teacher Survey of Beliefs and Practices (Marcon 1999) every year of the study. Teachers were asked to place themselves along seven dimensions of early childhood education that were anchored at one end by a child-centered response and at the other end by an adult-centered response. For each of the seven dimensions, teachers were asked to report on their beliefs and then about their classroom practices. The seven aspects of early childhood education and the end-points by which each of the rating scales is anchored were derived from theoretical dimensions of differences between models of early childhood education suggested by Minuchin and Shapiro (1983; Marcon, 1999). The dimensions cover: the teacher's scope of developmental goals, the teacher's conception of how children learn, the amount of autonomy the teacher gives to the child, the teacher's conception of his or her role, and whether the teacher provides learning opportunities from peers (Minuchin & Shapiro, 1983).

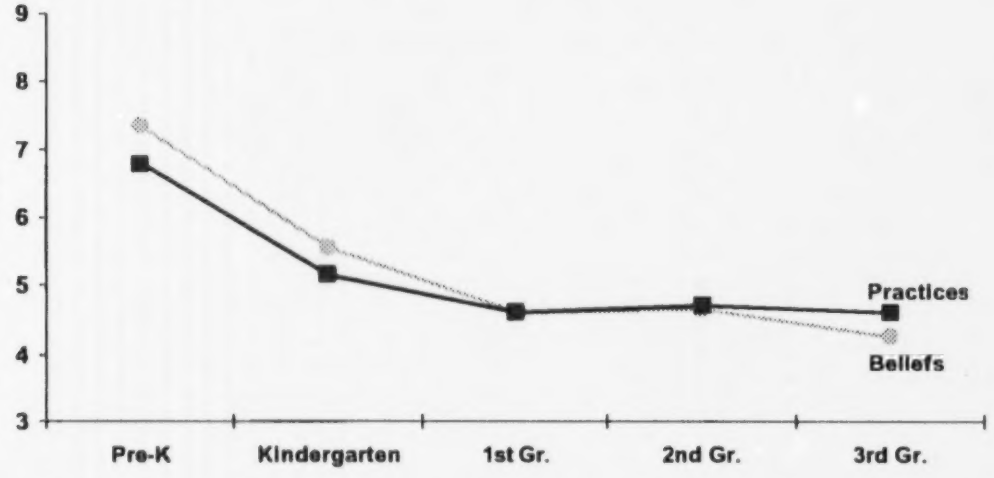
Following the discussion of each item, a figure visually displays the average response by year. Each bar is the length of two standard errors from the average. What this means is that if a bar does not overlap another bar, the average between the two items is statistically significant. The lower the average score, that is, the closer an average score is to 1, the more teacher-centered the response. Scores closer to 10 indicate more child-centered beliefs and practices.

Item 1 - Developmental Goal. Teachers were asked what they thought was the most important developmental goal for a child in each respective grade. The scale ranged from "Academic Preparation", which is a teacher-centered response to "Social and Emotional Growth", which is considered a child-centered response. In the Pre-K year (1996-1997), the average teacher score on the belief statement was 7.4, indicating a fairly strong preference for social and emotional growth as the most important developmental goal of Pre-K (see Figure 1.B.1). While the majority of kindergarten teachers expressed a preference for social and emotional growth as the most important developmental goal in kindergarten, the significant decrease in the average rating to 5.6 shows a marked increase in the importance of academic preparation during the kindergarten year. In the first grade year (1998-1999), the average belief rating fell again significantly, to 4.6. This rating below 5.0 indicates that teachers fell on the academic preparation side of the divide between academic preparation and social and emotional growth. Throughout all of the early elementary years, the belief scores ranged

between 4.3 and 4.7. Overall, the belief scores on item 1 averaged 5.3, the lowest score of any of the seven items measured.

In the Pre-K and kindergarten years, teachers said that their practices were significantly less child-centered than their beliefs. During the Pre-K year, the practice scores averaged 6.8 and during the kindergarten year the practice scores averaged 5.2. These scores are approximately one-half of a point lower than the belief scores. The response pattern for the practice items was similar to that of the response pattern for beliefs. The scores fell significantly in the kindergarten year from that of the Pre-K year, though remaining nominally on the child-centered half of the scale. By the first grade year (1998-1999), the scores had fallen significantly again, to 4.6, with most teachers having teacher-centered practices. However, during the early elementary grade, there was little movement; the scores ranged from 4.6 to 4.7. Teacher responses indicated that the practices were slightly more child-centered than the beliefs of the teachers. Surprisingly, the response pattern for the third grade year (2000-2001) teachers suggested that the practices were significantly more child-centered than the beliefs of the teachers. Responses to item one are the only example of the average practice scores being more child-centered than the average belief scores.

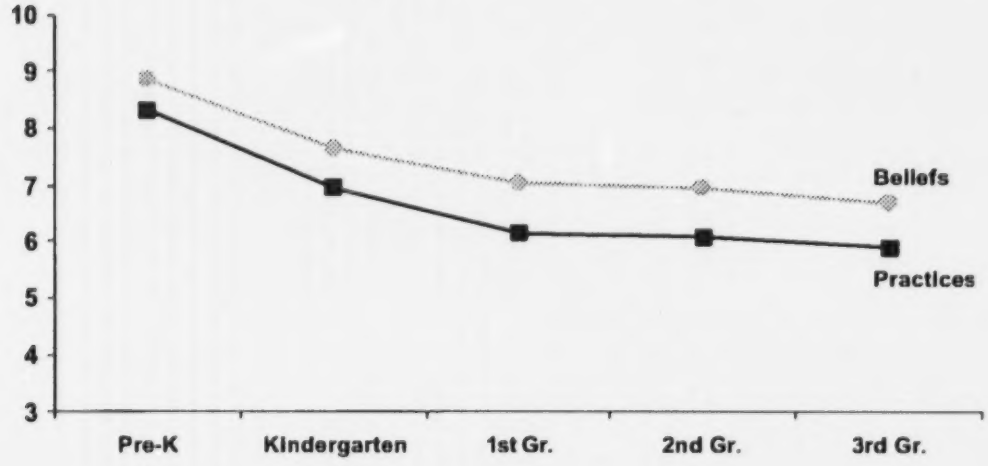
Figure 1.B.1: Developmental Goal



Item 2 - Children Learn Best Through. Teachers were asked what they believed was the medium through which children learned best. The scale ranged from "'Direct Instruction", which is a teacher-centered response to "Active Experience", which is considered a child-centered response. In the Pre-K year (1996-1997), the average teacher score on the belief statement was 8.8, indicating a strong preference for active experience as the best means of teaching Pre-K children (see Figure 1.B.2). This was the highest of any belief score recorded for any year. Similar to the response pattern of item 1, beliefs scores fell sharply between the Pre-K and kindergarten years. While kindergarten teachers (1997-1998) expressed solid preference for active experience, the average rating, 7.6, was 1.2 points lower than the average beliefs of the Pre-K teachers. Again, the average ratings fell significantly by the first grade year (1998-1999) to 7.1 and to 6.7 by the third grade year (2000-2001). While the ratings fell each year, the average scores indicated that, on average, all teachers have a strong belief in active experience as the best means for children to learn. Across all years, the average rating on item 2 was the highest recorded (7.4).

While the average practice scores were, on average, higher, indicating a more child-centered approach to instruction, the discrepancy between beliefs and practices on item 2 was the highest recorded of any item. The average practice score in the Pre-K year was 8.3, which indicates that teachers believe they are incorporating active learning into their teaching. Once again, the average scores fell sharply between the Pre-K and kindergarten year (-1.3) to 7.0 and then again between the kindergarten year and the first grade year (-0.8) to 6.2. By the third grade year (2000-20001), the average practice response fell another 0.3 points to 5.9. All of these average responses suggest that teachers, through the third grade year, are incorporating active experiences in their class environment. However, the discrepancy between beliefs and practices in the kindergarten through the third grade year averaged 0.8 points. Teachers expressed a stronger desire to provide more active experiences than they were able to accomplish.

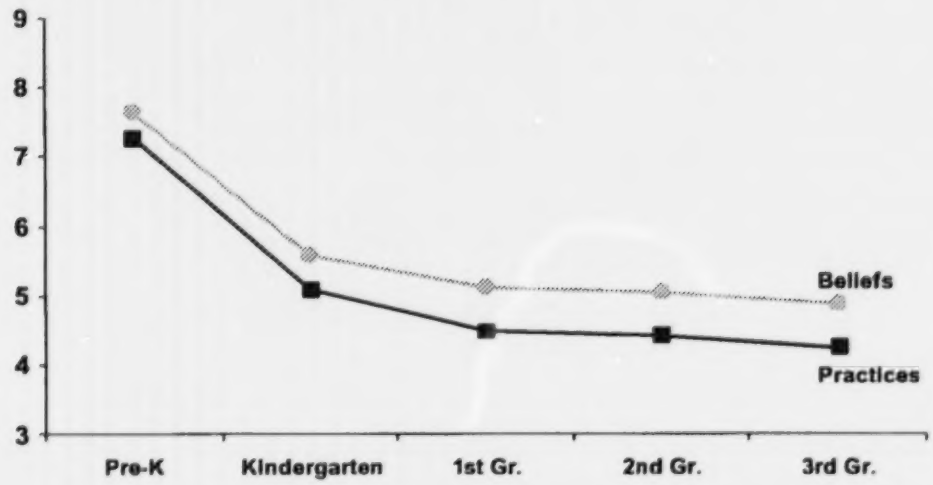
Figure 1.B.2: Children Learn Best Through



Item 3 - Initiated Activities. Teachers were asked whether activities in a classroom ought to be child-initiated or teacher-initiated. The average response in the Pre-K year was 7.6, suggesting that teachers believed child-initiated activities were preferable (see Figure 1.B.3). The average response fell 2.1 points in the kindergarten year (1997-1998) from that recorded in the Pre-K year (1996-1997), the largest one year difference of any score. In the kindergarten year, the average response to item 3 was 5.6. While this suggests a general preference for child-initiated activities, the score is close to the 5.5 mid-point between child-initiated and teacher-initiated activities. During the elementary grade years, the belief scores ranged between 4.9 and 5.1 indicating that teachers equally preferred the two alternatives for initiating activities.

Teacher reported practices followed a similar pattern to the belief responses. Pre-K teachers said that they generally used child-initiated activities (7.6), while kindergarten teacher responses (5.1) suggested a mix of teacher and child-initiated activities. The responses of elementary grade teachers shows a greater likelihood of using teacher-initiated activities as the average practice response for these three years was 4.4. The overall average of item 3 was the second lowest average of any of the seven items. Teachers are much more likely to use a teacher-centered approach to initiating activities. On average, the difference between the teacher beliefs and practices on this item was about 0.5 points.

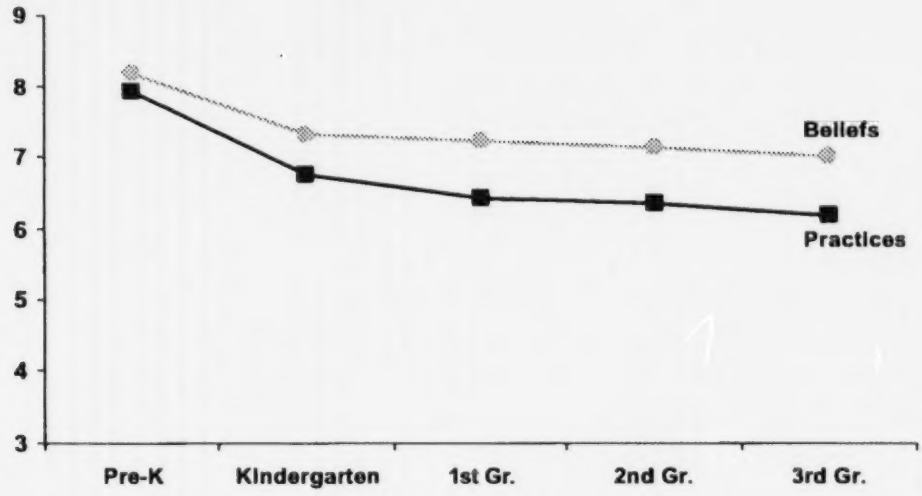
Figure 1.B.3: Initiated Activities



Item 4 - Role of Teacher. We asked teachers whether they viewed their role as "Dispensing Knowledge", a teacher-centered approach or "Facilitating Learning", a child-centered approach. A strong consensus exists that children, especially very young children, taught by teachers who use child-centered approaches have more positive long-term outcomes. The responses, both to the belief and practice items, suggest that teachers are very child-centered (Figure 1.B.4). During the Pre-K year, the average response to the belief item was 8.2. The average response fell significantly by the kindergarten year to 7.3, a level where it generally remained through the third grade year (2000-2001). In the first grade year (1998-1999), the average teacher response was 7.2, in the second grade year 7.1 and in the third grade year 7.0. The overall average response was 7.4, the second most child-centered response to any question.

While the overall response to the practice question, similar to the belief item, was the second highest overall response (6.7), the difference between the beliefs and practices was also the second highest overall. The two items that the teachers rate their beliefs to be most child-centered, active experience- item 2 and facilitating learning- item 4, are the two items that have the greatest discrepancy between beliefs and practices. In the Pre-K year, the teachers reported an average practice score on item 4 at 7.9. The rating fell 1.2 points between the Pre-K and kindergarten year to 6.8 points. In the elementary grade years, the scores ranged between 6.4 in the first grade year and 6.2 in the third grade year. Despite the large decreases in the average ratings, the responses of the teachers suggest that teachers attempt to facilitate learning instead of dispensing knowledge.

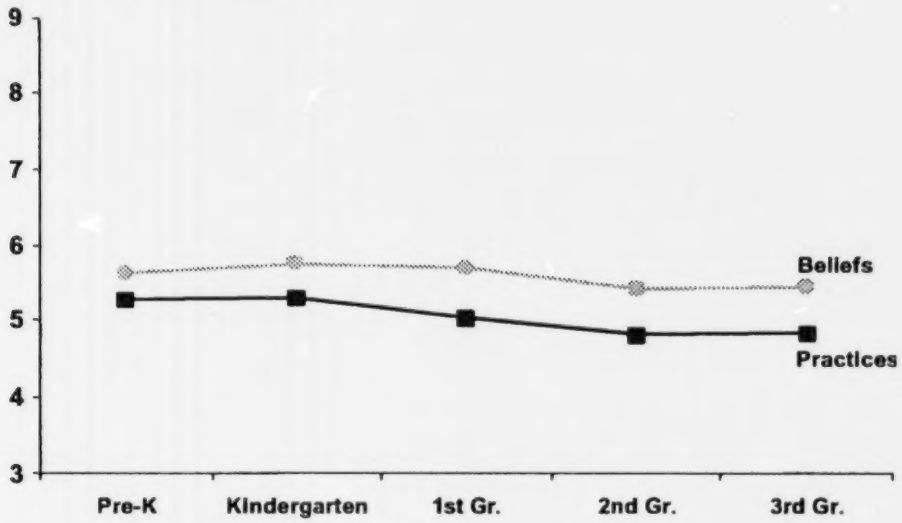
Figure 1.B.4: Role of Teacher



Item 5 - Learning Format. Another dimension of The Teacher Survey of Beliefs and Practices assessed teachers' beliefs about learning formats, contrasting "Group Oriented" with "Individualized One-to-One" instruction. Group orientation or whole group activities is considered a teacher-centered activity while individual instruction, or small group learning, is a child-centered activity. Combining these two approaches is considered to be optimal by some early childhood education experts. Teachers across all grade levels responded to this statement in almost uniform fashion (see Figure 1.B.5). The highest recorded average score was found to be in the kindergarten year (5.8) while the lowest score was in the second and third grade years (5.4). The learning format item had the second most teacher-centered average overall (5.58) and the smallest change from year-to-year, indicating a consistent, balanced approach from Pre-K to third grade.

The responses to the practice item mirrored the responses to the belief items. For each year, the average practice response was about 0.5 points lower than the belief responses. However, unlike the responses to the belief statements, practices did become more teacher-centered over-time. In the Pre-K and kindergarten year, the average response to the learning format item was 5.3. This suggested that teachers were slightly more inclined to provide individualized education in the two years prior to the elementary grades. In the first grade year (1998-1999), the average rating fell to 5.0 and then to 4.8 in the second and third grade years. This suggests that teachers were slightly more inclined to use whole group activities as a means of instruction during the early elementary years. With an overall average score of 5.0, the learning format item was the most teacher-centered item, though the rating indicates a mix between whole group and individualized learning.

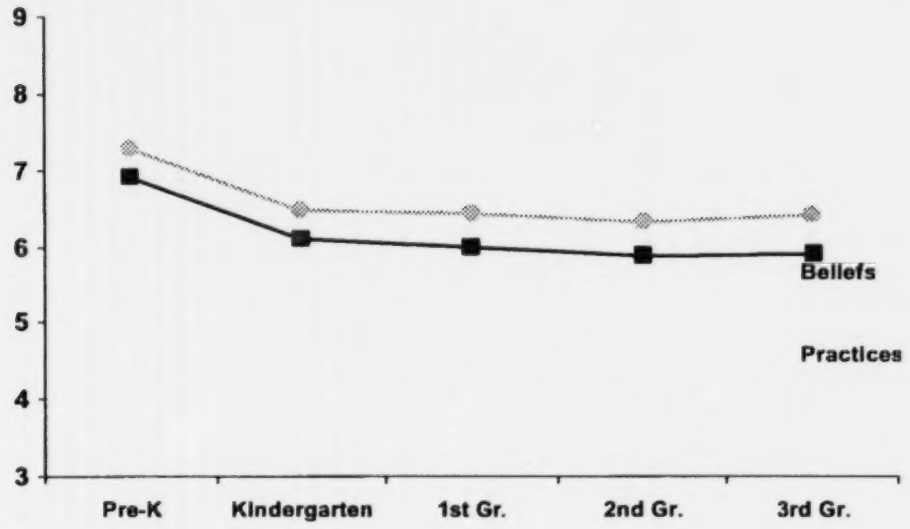
Figure 1.B.5: Learning Format



Item 6 - Children Learn Effectively. Teachers were asked whether children learned effectively through interactions with "Adults" or "Peers." Learning through interactions with adults is a teacher-centered approach while learning thorough interaction with peers is a child-centered approach (see Figure 1.B.6). Teachers expressed a general preference to incorporate learning through peer interactions. The overall average on this item was 6.4, indicating a fairly strong preference for peer interactions. In the Pre-K year, the average teacher score on this item was 7.3, suggesting that most teachers strongly supported peer interactions. The average fell by 0.8 points by the kindergarten year with an average score of 6.5. The average score on this item remained fairly consistent through the third grade year, ranging between 6.3 and 6.5.

Practices were consistently about 0.4 points lower than beliefs. In the Pre-K year, teachers reported an average practice score of 6.9 on the item that considered how children learn best. The average fell 0.8 points by the kindergarten year to 6.1, a level generally at which it remained through the third grade year.

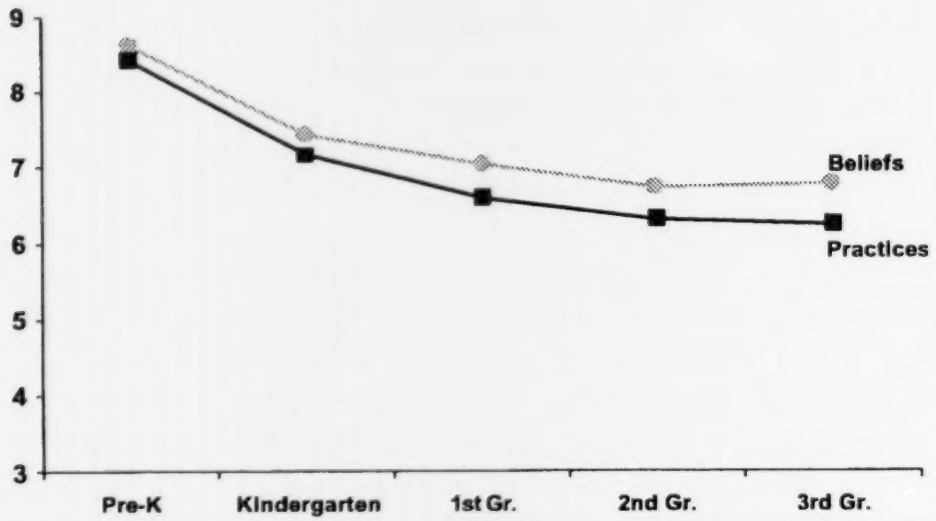
Figure 1.B.6: Children Learn Effectively



Item 7 - Class Materials and Resources. The final aspect of the survey dealt with teachers' beliefs and practices regarding children's access to classroom materials and resources. "Distributed" materials are a teacher-centered approach whereas "Child Accessible" materials are considered a child-centered approach. Pre-K teachers expressed a strong preference for materials being child accessible (8.6), the second most child-centered response of any item measured (see Figure 1.B.7). By the kindergarten year, teachers, while still strongly supportive of a child-centered approach, began to express less support for materials being child accessible (7.4). Through the second grade year, the average rating on this item fell 0.3 points a year to 6.7, a level that remained relatively consistent through the third grade year. The overall average on this item was 7.3.

Teachers said that their classroom practices strongly supported a child accessible approach. This item had the highest overall average (7.0) and the highest average in the Pre-K year (8.4). In the kindergarten year (1997-1998), the teachers reported a less child-centered approach as the average practice response fell 1.3 points to 7.2. Through the second grade year (1999-2000), the average rating on this item fell about 0.5 points a year to 6.3, a level that remained relatively consistent through the third grade year. The average difference between beliefs and practices was 0.4 points, the second smallest difference of any item measured.

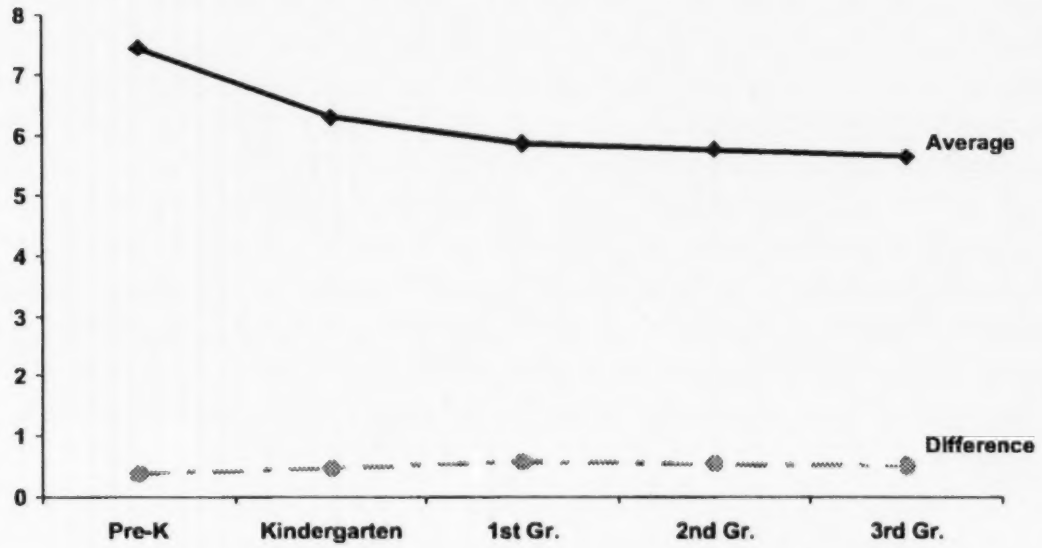
Figure 1.B.7: Class Materials and Resources



Average and Difference. Previous work using The Teacher Survey of Beliefs and Practices (Marcon, 1999) indicates that the overall average of the fourteen items and the difference between the beliefs and practice items are related to teacher style. The average of the 14 belief and practice items reflects a teacher's overall style of teaching. Higher scores reflect a more child-centered approach, while lower scores reflect a more teacher-centered approach. The difference between each belief and practice item provides a measure of the degree to which a teacher's beliefs conflict with his or her classroom practices.

The average Pre-K score across all fourteen items was 7.5 (see Figure 1.B.8). This was the highest average rating in any year. By the kindergarten year the rating, across all 14 items, was 6.3, a drop of 1.2 points. The average first grade year rating was 5.9 points, a drop of about 0.4 points, after which it remained stable. While this rating shows a preference for a child-centered approach, the drop from the Pre-K year to the third grade year (1.8 points) shows a significant decrease in child-centered beliefs and practices in the elementary grades. The conflicts between teachers' beliefs about their teaching and their teaching practices grew slightly after Pre-K, but only slightly.

Figure 1.B.8: Average and Differences of the Marcon Rating across All Items



Subsection C- Description of the Parent Surveys

At the end of each academic year, interviewers surveyed the parents of the children who participated in the Georgia Pre-K Longitudinal Study. In the final year, we attempted to survey 3,001 parents between the months of June and August and we were able to interview 2,025. This resulted in a response rate of 67 percent. Most of the surveys were completed over the telephone, but approximately 200 parents completed mailed surveys.

Parents were asked to rate their child's school on a ten-point scale, anchored with "Very unsatisfied" at the one point and "Very satisfied" at the ten-point (see Table 1.C.1). Overall, the parents appeared to be quite satisfied with their children's schooling with the ratings ranging from 8.4 to 9.0. Each year, the parent's ratings fell slightly from the previous year's ratings. By the end of third grade year (2000-2001), parent ratings of satisfaction fell 0.59 from the level of satisfaction reported at the end of the Pre-K year (1996-1997). The major change was in the top rating of 10. In the Pre-K year, almost two-thirds of the parents rated their Pre-K center as a 10. By the third grade year (2002-2001), less than one-half of the parents said that their child's school should receive a 10.

Table 1.C.1: Parent Satisfaction

	96-97	97-98	98-99	99-00*	00-01
Satisfaction with Child's School Experience	9.03	8.86	8.49		8.44

* Data not collected

Each year, we asked parents to predict the highest level of education that they expected their child to attain in the future (see Table 1.C.2). Each year, at least 80 percent of the parents said they expected their child to receive at least a bachelor's degree. The percentage responding in this fashion rose each year from the Pre-K year (1996-1997) through the second grade year (1999-2000). However, between the second grade year (1999-2000) and the third grade year (2000-2001), the percentage saying that they expected their child to at least graduate from college fell from 90 percent to about 82 percent. It is impossible to know if the final years results indicate the beginning of a downward trend or if the second grade year (1999-2000) results were unusually high.

Conversely, parents who said that they expected their child either not to complete high school or to complete high school and pursue no further education ranged between 15 percent in the Pre-K year to as low as four percent in the second grade year. Between the second and third grade year, the percentage responding in this fashion rose from 4.2 percent to 9.3 percent.

Table 1.C.2: Expected Educational Attainment

	96-97	97-98	98-99	99-00	00-01
Not Finish High School	0.4%	0.5%	0.5%	0.0%	0.2%
Graduate from High School	14.6%	10.3%	6.1%	4.2%	9.1%
Take Some Classes at a Voc/Tech College	0.0%	0.7%	0.5%	0.2%	0.7%
Graduate from a Vocational/Technical College	0.9%	1.3%	1.0%	1.4%	1.3%
Take some classes at a community college	0.7%	0.2%	0.4%	0.3%	0.7%
Graduate with a two-year degree	1.3%	2.2%	2.3%	1.0%	2.2%
Takes classes at a four-year college or university	2.4%	4.3%	3.7%	2.4%	3.2%
Graduate from a four-year college or university	69.2%	59.8%	58.3%	53.6%	51.8%
Complete a master's degree	4.4%	5.9%	10.0%	10.0%	11.7%
Complete advanced professional degree or Ph.D.	6.1%	14.8%	17.3%	26.8%	19.1%

At the conclusion of the third grade year (2000-2001), parents were asked to complete an extensive array of questions regarding health and income factors, parental perceptions of their children's behavior and other questions that may influence the degree to which a child is at risk

for grade retention, to drop out from school, and for other negative social outcomes. In the following section, we will address a number of these potential risk factors.

Health. Parents were asked to assess the state of their children's health (see Table 1.C.5). Almost all (86 percent) of the parents felt their children were in "very good" or "excellent" health whereas only two percent of parents felt that their children were in "fair" or "poor" health. The remaining 12 percent of parents felt that their children's health was "good."

Table 1.C.5: Perception of Child's Health

Excellent	56.8%
Very Good	29.4%
Good	11.6%
Fair	2.1%
Poor	0.1%

When we asked about health insurance for their children, almost 94 percent of the parents said that they had health insurance coverage. A majority (59 percent) of these parents said that their children were covered under an employer provided plan (see Table 1.C.6). Another 27 percent of parents said that their children were covered under PeachCare or Medicaid. Finally, about 14 percent of the parents pay for their children's health insurance directly.

Table 1.C.6: Type of Health Insurance for Children with Coverage

Medicaid	15.0%
PeachCare	12.3%
Employer Provided Plan	59.1%
Parent or Guardian Pays for Insurance	13.5%

Finally, we inquired whether the child had any type of disability or if there were any people in the house with disabilities that required on-going care (see Table 1.C.7). About 13 percent of the parents said that their child had some form of disability. Parents who responded affirmatively to this question were then asked whether they believed that the disability might have an impact on their child's performance at school. Sixty percent of these parents answered positively, meaning that about eight percent of the sample had some form of disability that the parents believed might impact their performance at school. Finally, about 16 percent of the parents responded that some member of the household had an illness or condition that required on-going care.

Table 1.C.7: Disabilities

Does the Child Have a Disability	13.3%
Does the Disability Impact the Child at School	59.2%
Anyone in Household Have an Illness or Condition that Requires On-going care	15.8%

Income. In both the Pre-K year (1996-1997) as well as the third grade year (2000-2001), about one-half of all parents said that their family income was about $30,000 or less. About three-fourths of all parents said that their family earned less than $50,000 a year. Approximately one-half of the children were eligible for free or reduced price lunches during the Pre-K year. OSR designates children eligible for free and reduced lunch as "Category One", which is defined as participation by the child's family in a means tested program, such as Food Stamps, SSI, Medicaid, Temporary Assistance to Needy Families (TANF), or PeachCare. Children who participate in the free or reduced price meal program through the center/school in which they attend may also be included as "Category One" if income eligible.

At the conclusion of the third grade year (2000-2001), parents were asked to indicate whether they received any supplemental sources of income or support at any point in the previous five years (see Table 1.C.8). Just over one-quarter of all children in the study received health care insurance benefits provided by Medicaid or PeachCare. Just under one-quarter of the children reside with a parent who is receiving or has received child support payments. Approximately one-sixth of all families said that they received Food Stamps at some point during the previous five years. About 14 percent of the parents received WIC- Special Supplement Food Program for Women, Infants and Children benefits at some point in the last five years. Almost 11 percent of the parents said that they received or continued to receive welfare or Temporary Aid for Needy Families (TANF) benefits. Less than 10 percent of the parents said that they received the following benefits- Educational Grants/Assistance; Unemployment Insurance; SSI or SSDI; Money Given to the Family or Social Security Retirement or Survivor's Benefits.

Table 1.C.8: Family Participation in Supplemental Income Programs (1996-2001)

Medicaid or Medical Assistance including PeachCare	25.9%
Child Support	24.1%
Food Stamps	16.7%
WIC- Special Supplement Food Program for Women, Infants and Children	14.4%
Welfare (TANF)	10.6%
Educational Grants/Assistance	8.9%
Unemployment Insurance	8.1%
SSI or SSDI	7.8%
Money Given to the Family	7.4%
Social Security Retirement or Survivor's Benefits	5.5%

In order to synthesize the income data for use in later analysis, we estimated a latent class model using: 1) an income variable split into three categories (high, moderate and low income); 2) a variable indicating Category 1 designation; and 3) variables that indicate whether the family is receiving or has received benefits from programs for which eligibility is determined by family income or need. The best model identified four socio-economic groups (see Table 1.C.9).

Approximately eight percent of all families appeared to be in the lowest socio-economic group (Class 1). Over 50 percent of all members of Class 1 received welfare or TANF benefits. Similarly, approximately 50 percent received WIC benefits. Over 80 percent said they received Food Stamps and almost 90 percent said they received health insurance benefits. Approximately 80 percent were classified as "Category One", and almost all families reported a low family income.

Class 2 represents families who have more family resources than Class 1 members, but many receive health care benefits. Less than 12 percent of Class 2 members said they received welfare/TANF, Food Stamps or WIC. However, over 20 percent of the members of this class said they received health insurance benefits. Sixty-eight percent of the members of Class 2 were designated as "Category One", and all families reported having low income. However, the income appeared to be above the poverty line, which accounts for the low percentage of Class 2 members stating that they received income supplements. Forty-six percent of all families were categorized as belonging to this group.

The third group consists of families of moderate income and low occurrences of receiving income or health benefits. About 30 percent of children from these families were designated as "Category One". Forty-two percent of all families appeared to be in Class 3.

Class 4 denotes the most affluent families, although 16 percent qualified as "Category One" for the year that their child attended Pre-K. All stated their income level to be in the highest categories. About four percent of families were categorized in Class 4.

Table 1.C.9: Socio-Economic Status

Variable	Percentage of families within the Class			
	Class 1	Class 2	Class 3	Class 4
Welfare/TANF	54	0	2	0
Food Stamps	84	2	3	0
WIC	52	11	5	0
Health Insurance	88	21	8	1
Category 1	83	68	30	16
Low Income	96	100	0	0
Moderate Income	4	0	100	0
High Income	0	0	0	100
Proportion	16	37	42	5
Projected Most Likely Category	8	46	42	4

Risk Factors. We attempted to collect data on numerous factors that could place a child "at-risk" of not succeeding academically and socially. (see Table 1.C.10). These at-risk factors cover a gamut of issues, ranging from neighborhood conditions to homelessness.

Almost 60 percent of the children in the study lived continuously with both parents since birth. Almost 70 percent of the children were living in houses that either had married parents or one of the parents living with a significant other. Relatively few children lived in single parent households. The length of time that the parents or significant others were together when the children were about 8 years old was approximately 12 years. This suggests that most children lived in fairly stable homes.

We asked parents the number of times that they moved since the Pre-K year (1996-1997) and the number of elementary schools their children attended since kindergarten. The median child moved once since the Pre-K year. The most mobile children, defined as the top 10 percent of movers, moved about three times since the Pre-K year. About 0.5 percent of the children moved more than 10 times since the Pre-K year. Most children have remained in the same elementary school that they started in first grade. The median number of schools attended by the 10 percent of children who attended the most number of elementary schools since kindergarten was two. Less than 0.4 percent of children attended twelve or more schools since kindergarten.

A small number of children have been homeless at some point since the Pre-K year (1996-1997). According to the results of the final parent survey, 3 percent of the parents reported that they had been homeless at some point in the last five years. Less than 2 percent of parents said that they presently lived in subsidized housing, transitional housing or a homeless shelter.

Though Georgia has one of the fastest growing Hispanic populations in the nation, the Hispanic population is approximately four percent of the total population. In the sample of children in the GPKLS study, 4.4 percent of the parents said that English was not the primary language spoken at home.

Finally, we inquired into problems of substance abuse, sufficiency of nutrition and fear of crime. Less than 2 percent of the parents reported that someone in the house had a substance abuse problem. Similarly, less than 1.5 percent of the parents said that they sometimes or often did not have sufficient food at home to feed their family. Finally, fear of crime does not appear to be a significant issue. Parents were asked about five types of crime (cheated/swindled, home

robbery, car stolen, mugging, and property damage) and how fearful they were about these crimes. We averaged the five questions (? = .87), which ranged from 1 (not fearful at all) to 5 (very fearful). On average, the fear of crime was a low 1.54.

Table 1.C.10: Self-Reported Risk Factors from Parent Survey Data

Child Lived Continuously With Both Parents Since Birth	59.6%
Child Living in Household with Married Parent or Parent Living with a Significant Other	69.8%
Median Number of Years Living Together	12 yrs.
Median Number of Times Moved Since 1996-1997	1
Median Number of Times Moved Since 1996-1997 for 10% Most At-Risk	3
Median Number of Elementary Schools Child Attended	1
Median Number of Elementary Schools Child Attended for 10% Most At-Risk	2
Percent Homeless at Some Point Since 1996-1997	2.7%
Percent Living in Subsidized Housing, Transitional Housing or a Homeless Shelter	1.6%
Percent Speaking Language Other than English at Home	4.4%
Anyone in Home have Drinking or Drug Problem	1.9%
Sometimes or Often not Having Enough to Eat	1.4%
Fear of Crime (mean)	1.54

Parents were asked if there was an adult present when their children returned home from school (see Table 1.C.11). Almost 92 percent of them said that an adult was 'always' present whereas 5.8 percent said that an adult was 'usually' present. Only 1.8 percent of them indicated that an adult was 'sometimes' present whereas 1.3 percent said that an adult was 'never' present.

Table 1.C.11: Presence of Adult at Home after School (percent)

Always	91.2
Usually	5.8
Sometimes	1.8
Never	1.3

Personal Social Capital. We asked parents about how helpful family members, friends and other people were in terms of raising their child, what we call personal social capital (see Table 1.C.12). Grandparents were considered the most helpful, with 84 percent of parents saying that the grandparents were either very or somewhat helpful. Sixty-two percent of the parents said the other biological parent was very helpful. Apparently, divorce and separation played a major role in a parent's assessment of the helpfulness of the other parent. Married parents generally consider their spouses to be very helpful (77 percent) compared with only 26 percent of divorced or separated parents who consider their spouses to be very helpful.

About one-half of the parents said that members of religious or social groups, people at their child's school and friends were very helpful in raising their children. At least 80 percent of the parents said members of religious or social groups were considered either very or somewhat helpful. Professional caregivers were considered very helpful or somewhat helpful by 54 percent of respondents. Finally, co-workers were not considered a significant source of personal social capital.

Table 1.C.12: Personal Social Capital

	Very Helpful	Somewhat Helpful	Not Very Helpful	Not at All Helpful
Grandparents	65.0%	19.0%	5.4%	10.6%
Other Parent	62.2%	13.5%	7.3%	17.1%
Religious or Social Group Members	50.8%	29.0%	5.3%	14.9%
People at Your Child's School	48.8%	34.9%	5.0%	11.3%
Your Friends	48.0%	38.4%	5.8%	7.8%
Professional Caregivers	32.5%	21.4%	7.5%	38.5%
Co-Workers	22.9%	28.6%	12.7%	35.8%

Behavior. Parents were asked to evaluate the behavior of their children on a number of factors. Seven questions from the Social Skills Rating Scale (Gresham & Elliott, 1990) were adapted for use in assessing the parent's perception of their child's behavior (see Table 1.C.14). The potential responses to the questions of perceived behavior ranged from "always true" to "never true."

When asked if their children made friends easily, almost 70 percent of the parents agreed that this was 'always true' while only 3 percent completely disagreed and said that this was 'never true.' Almost two-thirds of the parents remarked that it was 'always true' that their children showed imagination in work and play. Sixty percent of the parents agreed that it was 'always true' that their children comforted or helped others.

For the above three factors, which may be considered positive behavioral outcomes, it was observed that parents were more likely to agree that they were 'always true' or 'often true' than sometimes or never true. However, when parents were asked if their children threw temper tantrums or possessed hot tempers, only 14 percent of the parents agreed that this was 'always true' or 'often true.' Approximately 85 percent of them said that this was 'sometimes true' or never true.' An overwhelming majority of almost two-thirds of the parents said that their children were never unhappy, sad or depressed. When asked if their children were nervous, high strung or tense, close to 60 percent of them said that this was 'never true' whereas almost 29 percent of them said that this was 'sometimes true.' Parents were more likely to say that their children were disobedient at home. Only 37 percent of the parents asserted that their children were never disobedient at home.

Table 1.C.14: Parent Perception of Child Behavior

	Always True	Often True	Sometimes True	Never True
Makes Friends Easily	69.9%	17.8%	9.7%	2.6%
Shows Imagination in Work and Play	66.4%	17.2%	12.7%	3.8%
Comforts or Helps Other	60.0%	21.9%	16.2%	2.0%
Has Temper Tantrums or Hot Temper	6.1%	8.2%	38.3%	47.4%
Is Nervous, High Strung, or Tense	5.8%	5.6%	28.9%	59.7%
Is Disobedient at Home	3.8%	5.5%	53.6%	37.1%
Is Unhappy, Sad or Depressed	3.1%	2.0%	29.6%	65.3%

Subsection D- Student Ratings over Time

A primary focus of the GPKLS study was to track assessments of a probability sample of students who were enrolled in the Georgia Pre-K program in 1996-1997. In previous reports, we focused on two primary outcomes -- teacher assessments of student achievement and student retention. Regarding student achievement, we focused on four broad outcomes- academic performance (language arts and math), social-behavioral outcomes, communication skills and school readiness for the subsequent grade, all based on teachers' ratings of individual children. In this section, we present the trends in the teachers' ratings. In the second chapter, we analyze the extent to which children were retained during their first four years of formal schooling. In the third chapter, we analyze student performance on statewide, standardized assessments and on teachers' ratings of the children's skills and behaviors.

Each year from 1996-1997 through the conclusion of the fifth year of the study (2000-01), we asked teachers to complete an extensive rating form for each child (Student Rating Forms). The form for 2000-01 covered language arts, math, science, social studies, communication, social behaviors, readiness for the next grade, parent participation, whether the child was discussed at a Student Support Team meeting or had an Individualized Education Plan, and the teachers' expectations for the children's educational attainment. The rating scale ranged from a low of 1 (Extraordinarily Poor) to a high of 7 (Extraordinarily Good) with the intermediate ratings being 2 (Very Poor), 3 (Poor), 4 (Average), 5 (Good) and 6 (Very Good). The ratings were completed by the students' teachers based upon their performances at the beginning and end of each respective school year, though we have only reported on the year-end ratings. However, we have included fall ratings from the Pre-K year (1996-1997), since that was the start of the study or baseline observation for most of these children in this study.

Teacher Assessments. In 2000-01, teachers rated children on 22 specific skills, which we condensed into a number of more compact factors that represent the overall skills we were attempting to measure. The academic ratings were tied directly to objectives in Georgia's Quality Core Curriculum (QCC). Other items were based on behavioral items used in earlier years to assess communication skills and social behaviors. A few items were modified to reflect that the children were older, incorporating social skills expectations for third graders.

Our interest was not primarily in a child's rating on a particular QCC or behavioral objective. Rather, we were interested in how the child did in the overall skill area that we were attempting to measure. In the following section, we will discuss each of the broad skill areas that we attempted to measure and provide some specifics on the items that we directly measured. Following this, we will discuss trends in children's skills as assessed by their teachers.

Communication

Communication covered ratings of the students' ability to interact with their peers and adults. They were rated not only on their proficiency to initiate conversations informally but also their willingness to let others make opinions, and to listen when others were speaking. A key feature of this construct was students' propensity to compliment others on their accomplishments and qualities and to display tolerance for other children with characteristics different from their own. We did not change the meaning of this construct over time. A typical statement on the rating form was:

> *Making Conversation: Pays attention to the person speaking; uses a voice tone that is appropriate to the situation; makes relevant remarks in a conversation with peers or adults; is able to initiate conversation with peers in an informal situation.*

Social-Behavior

Social behaviors included a variety of behaviors that would indicate that the student interacted with others in reasonable and appropriate ways. Students were assessed on issues such as handling conflicts constructively without resorting to physical and aggressive verbal reactions,

presenting their thoughts and opinions lucidly, and avoiding unethical decisions. We did not change the meaning of this construct over time. A typical statement on the rating form was:

Ethical Behavior: Tells the truth when asked about possible wrongdoing; understands consequences of behavior involving wrongdoing.

Language Arts

Four of the most typical components of language arts (Writing, Listening, Speaking and Reading) were included within this construct. Items ranged from students' proficiency in comprehending, analyzing and summarizing age-appropriate information through the use of correct principles of grammar and with commensurate fluency. A typical statement on the rating form was:

Overall Language Arts: Reads and comprehends a variety of literary forms; writes using correct spelling and principles of grammar and mechanics.

Math

The items relating to math skills incorporated a number of age-appropriate math skills such as understanding measurement and estimation, ascertaining and applying information for problem solving, and dealing with concepts in whole numbers and geometry. A typical statement was:

Overall Math: Solves math problems that involve whole number operations, fractions and decimals, measurement, estimation, shapes, word problems, and patterns and relationships.

Overall Science

Science incorporated several dimensions, including judging the students on scientific inquiry skills they possessed, their ability to use relevant tools to gather information, and solve problems. It also dealt with their grasp of various science concepts like matter, motion and forces, earth history, natural life sciences, etc. A typical statement was:

Overall Science: Possesses scientific inquiry skills such as observation, classification, estimation and measurement, and inference; uses appropriate tools to collect and analyze information to solve problems; understands science concepts such as matter, motion and forces, heat, basic life processes of animals and plants, natural resources and earth history.

Overall Social Studies

A social studies item was added to the study for 2000-2001. The construct covered concepts in geography such as understanding various landforms and river bodies, recognizing civic and governmental institutions, comparing cultures, climates, and communication of various communities. The statement we provided to teachers was:

Understands concepts related to geography such as characteristics of various land forms and rivers, distance, and direction; understands rights and responsibilities of citizens and governmental bodies; describes and compares culture, climate, and communication of various communities.

Readiness

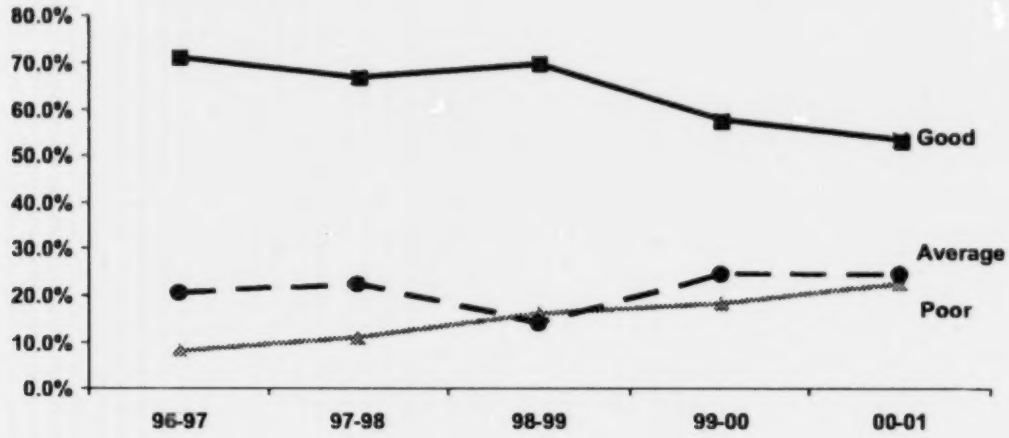
Teachers were asked to rate students on their readiness for the subsequent grade at the end of every academic year. Specifically, teachers rated the following statement for 2000-01:

*Indications are present that the child is developmentally prepared to succeed in the **fourth** grade school environment; areas include the child's development in cognitive, language (expressive and receptive), social-emotional, behavioral, and physical domains.*

Even teachers of children who were retained and not eligible for the fourth grade were asked to rate each child's performance to fourth grade readiness. Teachers were not asked to rate children's readiness in the fall of the Pre-K year.

Figure 1.D.1 depicts teachers' ratings of the children's readiness at the end of each school year. Approximately, 70 percent of the students were rated as good or better on the readiness item in the Pre-K, kindergarten and first grade years. In the second grade year, the number of students rated good or better fell to 57 percent and in the third grade year it fell further to 53 percent. The number of students rated poor or worse rose each year. In the Pre-K year, the percentage of students rated poor or worse was 8 percent. This rose steadily each year, reaching 22 percent in the third grade year. Since we only have ratings on children who attended Pre-K, it is impossible to determine how the ratings are affected by participation in Pre-K. Perhaps, ratings could be improved through smoother transitions from Pre-K to elementary school.

Figure 1.D.1 Readiness Item over Time



Parent Participation

Starting in the second grade year (1999-2000), teachers were asked to assess the involvement of parents in their child's education. Specifically, we asked teachers to assess the following item:

> *Your perception of the degree to which this child's parent(s) is/are interested in, participates in, or takes responsibility for their child's education; includes help with homework, seeing them off to school, communication with teacher, classroom volunteering.*

Over the course of the five years of the study, we attempted to measure seven skills or behaviors of the children and parental involvement. Table 1.D.1 provides the averages for each of the individual ratings across time. The number of items beneath the seven overall skills or behaviors changed periodically. Some items were dropped or modified for methodological reasons or to recognize developmental growth of the children. Other items were added, particularly for math and language arts as children progressed and expectations for their skills became finer grained and differentiated. In the following, we provide a brief description of the trends in the items that make up the constructs.

It is very important to understand that the items represented increasing expectations that were appropriate as the children developed and progressed to higher grades. Therefore, a child who performed at the same level each year would receive the same score. Therefore, if the children maintained their initial performance levels the averages would stay the same over time. If the average scores rise over time, then the students are doing increasingly better. If the scores decline from one year to the next, the students are falling behind. It could have been that more students did less well or that students who were already behind lost more ground.

When the children entered Pre-K (1996), their average communication ratings were in the low 4 range. By the end of the Pre-K year (1997), the average communication ratings increased to just over 5.0, a "Good" rating. The communication ratings remained in the low 5.0 range through the end of the first grade year (1998-1999) before they started to decrease through the end of the study period. By the end of the third grade year (2000-2001), communication ratings fell to slightly below 5. This trend, rising from the fall of the Pre-K year (1996) through the first grade year (1998-1999) and falling thereafter through the third grade year (2000-2001) is repeated for almost every construct.

The items making up the overall rating of social behaviors averaged 3.9 to 4.6 in the fall of the Pre-K year (1996). In the spring of the Pre-K year (1997), the social behavior ratings rose to about 5.0. Small increases continued through the end of the first grade and then slight declines through their third grade year (2000-2001). From the fall of the Pre-K year (1996) through the spring of the Pre-K year (1997), language arts rating rose about .70 points. These ratings peaked during the study's third year and fell about .30 points to the mid 4 range by the spring of 2001. From the fall of the Pre-K year (1996) through the spring of the Pre-K year (1997), math ratings rose about .90 points. Through the first grade year (1998-1999) math ratings rose another .50 points to an average of 5.3 on the seven point scale. However, by the third grade year, math ratings fell about .70 points from its high, averaging 4.6 in spring 2001.

Science ratings were collected for the first time during the first grade year (1998-1999). Starting at 5.4 points, the science ratings followed the overall pattern and fell consistently through the third grade year (2000-2001) to settle at 4.6 points. Social studies ratings were only assessed in the third grade year (2000-2001), with an average rating of 4.6.

The pattern of readiness ratings was slightly different than the others. From when it was first collected in the spring of the Pre-K year (1997) with an average rating of 5.3 points, it remained relatively constant through the first grade year (1998-1999). Thereafter, readiness ratings fell sharply each year through the third grade year (2000-2001), ending up at 4.6 points. Finally, parent participation ranged in the 4.8-4.9 range, indicating that the second and third grade teachers rated the parents of Pre-K participants somewhat above average in their participation.

Table 1.D.1: Student Ratings in Selected Areas (all children)

	Pre-K Year					
	Fall 96	Spring 97	97-98	98-99	99-00	00-01
Communication						
Making Conversation	4.32	5.21	5.19	5.40	5.03	4.90
Positive Attitude Towards Others	4.13	5.06	5.09	5.25	4.92	4.81
Communication Skills	3.96	4.88	4.89	5.15		
Social-Behavior						
Coping with Conflict	3.93	4.65	4.53	4.70	4.60	4.52
Ethical Behavior	4.17	4.95	4.96	5.21	5.08	4.94
Positive Expression	4.20	5.12	5.05	5.17	5.03	4.88
Respect for Authority	4.59	5.32	5.37	5.57	5.39	5.24
Refusal Skills	3.97	4.71	4.62	4.86	4.65	
Language Arts						
Writing				4.83	4.94	4.37
Listening				5.02	4.95	4.64
Speaking				5.27	4.98	4.80
Reading					4.89	4.61
Overall Language Arts	4.15	4.86	4.93	5.11	4.71	4.52
Math						
Measurement					4.89	4.54
Math Problem Solving					4.73	4.52
Whole Number Operations					4.93	4.73
Patterns and Relationships					5.23	4.97
Estimation						4.55
Factions and Decimals						4.48
Overall Math	3.98	4.88	5.04	5.33	4.82	4.61
Overall Science				5.42	5.01	4.56
Overall Social Studies						4.63
Readiness for Subsequent Grade		5.28	5.23	5.19	4.85	4.63
Parent Participation					4.85	4.75

SST Meetings. Referring a student to a Student Support Team meeting (SST) is for the purpose of making a concerted effort to meet a student's needs within the parameter of the general education program (see Table 1.D.2). Usually, a SST meeting indicates that a child is exhibiting negative behaviors that may compromis e her or his education, but it can mean that an assignment to gifted and talented programs is being considered. The percentage of students who were the subject of a SST meeting almost doubled to 28 percent from kindergarten to the first grade year (1998-1999) and, subsequently, fell to about 24 percent. Teachers cited academic problems as the most common reason for holding a SST meeting. This was followed by behavioral/emotional concerns. There was a sharp increase in percentage of SST's due to Academic Difficulties between the first grade year (1998-1999) and the second grade (1999-2000), which is consistent with falling performance ratings at this juncture. Speech and language assistance needs fell between the first grade year (1998-1999) and the subsequent years.

Table 1.D.2: Student Support Team Meetings and Individualized Education Plans

	96-97	97-98	98-99	99-00	00-01
SST Meetings		13.8%	28.7%	23.8%	24.4%
Purpose of Meeting					
Academic Difficulties			9.8%	15.0%	15.4%
Behavioral/Emotional Concerns			6.7%	8.1%	8.5%
Speech and Language Assistance			8.0%	4.8%	3.7%
Other			1.7%	3.3%	3.5%
Assignment to Gifted and Talented Program			3.5%	1.4%	1.6%

Subsequent Year Placement. At the conclusion of the Pre-K year (1996-1997), all students continued onto kindergarten. While students did not have to enter kindergarten in the following year (1997-1998), the students were not permitted to remain in Pre-K. After the kindergarten year, teachers recommended that 3.5 percent of the Pre-K participants repeat kindergarten in the following year (see Table 1.D.3). Ninety-four percent of the children matriculated into a typical first grade class for the first grade. Less than one percent of children were placed in a special education class and two percent of the children entered un-graded or other types of classes. During each of the next three years, the number of children continuing on at grade level fell by about four to five percentage points per year.

In 1998-99, ninety percent of the children were expected to enter the second grade. In 1999-00, teachers recommended that 85 percent of the students enter the third grade. For the following year (2000-01), 81 percent of the children were expected to enter the fourth grade. The number of children in special education classes rose from about 1 percent in the second grade year to 3 percent in the fourth grade year. Finally, the number of children in other grades or for whom their placement was uncertain stayed at about 5 percent per year after the second year of the study.

Table 1.D.3: Subsequent Year Grade Placement Recommendation

	96-97	97-98	98-99	99-00	00-01
Kindergarten		3.5%			
First Grade		94.1%	3.7%		
Second Grade			90.3%	9.1%	0.6%
Third Grade				85.1%	10.8%
Fourth Grade					80.5%
Fifth Grade					0.4%
Other Grade		1.8%	5.4%	4.4%	4.4%
Special Education		0.6%	0.5%	1.4%	3.4%

Future Academic Attainment. At the end of each academic year (except the first grade year, 1998-1999), teachers were asked to estimate, based upon their knowledge of the students in their class, what their expectations were for the future educational attainment of their students who participated in the GPKLS. The teachers were asked to choose from a comprehensive list of possible outcomes, from students unlikely to finish high school to students completing advanced degrees.

Each year, at least 40 percent of the teachers said they expected their students to receive at least a bachelor's degree (see Table 1.D.4). The percentage responding in this fashion stayed remarkably consistent each year from the Pre-K year (1996-1997) through the fourth year of the study when most of the students were in the second grade (1999-2000). The number of children expected to receive an advanced degree also remained consistent throughout the

study. Each year, the teachers said that about 10 to 14 percent of the children in their class would go on to complete an advanced degree.

Each year teachers thought that more of the students would not go beyond graduating from high school. In the Pre-K year (1996-1997), the teachers expected that about 22 percent of the children would do no more than graduate from high school. However, each year, more teachers formed this expectation. By the study's fifth year, teachers expected 30 percent of the students to stop their education with a high school diploma or as high school drop-outs.

Table 1.D.4: Expected Educational Attainment

	96-97	97-98	98-99	99-00	00-01
Not Finish High School	3.8%	3.8%		4.4%	5.7%
Graduate from High School	17.9%	19.5%		25.0%	24.5%
Take Some Classes at a Vocational/Technical College	6.6%	5.7%		4.4%	5.1%
Graduate from a Vocational/Technical College	9.3%	7.7%		6.2%	5.5%
Take some classes at a community college	5.7%	5.2%		5.2%	4.6%
Graduate with a two-year degree	7.3%	4.7%		4.6%	5.4%
Takes classes at a four-year college or university	6.7%	9.7%		7.8%	7.9%
Graduate from a four-year college or university	29.0%	34.6%		31.3%	31.2%
Complete a master's degree	7.7%	5.8%		6.1%	6.2%
Complete an advanced professional degree or Ph.D.	6.0%	3.4%		4.9%	4.0%

Taken on the whole, teachers have significantly lower expectations for children's educational expectations than parents (see Table 1.C.2), although the teachers' expectations are high relative to past rates of educational attainment in Georgia. In spring 2001, three-fourths of all parents expected their children to graduate from college, while 41 percent of teachers expected the same children to finish college. Only 9 percent of the parents expected their child to stop with a high school diploma, contrasted with 25 percent of the teachers.

Chapter 2
Retention Experiences of Pre-K Participants

The decision to retain students during their elementary years can have positive or negative consequences. Retaining children in grade can provide them with the skills necessary to progress successfully through the remainder of their schooling. However, children who have been retained are more likely to drop-out of school before high school graduation and experience fewer successes in school. Extensive efforts to research this issue have not provided conclusive evidence about the impact of retention; essentially it may depend on the student and whether the experience that they have during the additional year they spend in elementary school is one that results in increased skills and abilities. It is clear that each student retained adds an additional year of schooling to the costs that society bears. Reducing the number of children retained is one of many positive outcomes that Georgia's Pre-K program could achieve. If this outcome is realized, Georgia taxpayers could avoid the cost of educating some children for an additional year and fewer children would suffer negative consequences from being retained.

The Georgia Pre-K Longitudinal Study (GPKLS) cannot provide information on whether Pre-K participants are more or less likely to be retained than other children who did not attend Pre-K. The data on retentions collected by the Georgia Department of Education is not comparable to the data collected for this study. GPKLS can provide significant insights about how characteristics of children who participated in Georgia's Pre-K program and their families influenced whether a child was retained in grade during the first four years of formal schooling. Also, GPKLS can shed light on the extent to which differences in the children's Pre-K experiences may have influenced whether a child was retained or not during elementary school. In this chapter we present the results of the analysis of the extent to which risk factors, such as having a teenaged mother or being raised in poverty, influences retention, and how differences in program providers, teachers, and curricula influence retention.

Retention of Pre-K participants

Approximately nine percent of the children in the 1996-97 Pre-K cohort were retained by 2000-2001, the year that the children should have been in the third grade (Table 2.A.1). Another 1.4 percent of the children were assigned to special education, which are often ungraded classes, and 4.4 percent were in classes that were not regular classes and therefore were designated as "other". In most years after kindergarten, about five percent of the students were retained or received special assignments that were likely to result in falling behind their peers in school.

Table 2.A.1: Expected Grade Placements by Year

	97-98	98-99	99-00	00-01
Kindergarten	100%	3.5%		
First Grade		94.1%	3.7%	
Second Grade			90.3%	9.1%
Third Grade				85.1%
Fourth Grade				
Fifth Grade				
Other Grade		1.8%	5.4%	4.4%
Special Education		0.6%	0.5%	1.4%

A few more children were expected to fall behind their peers in 2001-02, based on the information provided by the children's teacher during 2000-01, as shown in Table 2.A.2. However, the retention rate seems to be declining with approximately 83 percent of the students continuing on to the fourth grade, according to their teachers.

Table 2.A.2: Predicted Placement of Students for the 2001-2002 School Year

	Percent of Children
Second Grade	0.7%
Third Grade	10.8%
Fourth Grade	82.6%
Fifth Grade	0.4%
Other Grade	3.4%
Special Education	2.1%

For the remainder of the analysis, we will use the percentage of children for whom Georgia's official enrollment count in the fall of any school year indicated that the students had been retained. Using this data source, we estimate that 12.6 percent of the 1996-97 study participants were retained at some time during their formal schooling and some of these children may have been retained more than once.

Retention and Child and Family Background Characteristics

Children with family background characteristics that have been associated with being at-risk of school failure are much more likely to have been retained than other children. The retention rates associated with children's individual characteristics and whose families have greater levels of risk are shown in Table 2.B.1. For the purpose of this analysis, retention is defined as being retained in grade at least once by the 2000-2001 school year.

Table 2.B.1: Retention Rates by Child and Family Background Characteristics

		Percent Retention
Age Category	4.0 - 4.2	17.9%
	4.2 - 4.4	14.0%
	4.4 - 4.6	10.6%
	4.6 - 4.8	9.8%
	4.8 - 5.0	7.9%
Sex	Female	10.2%
	Male	14.0%
Teen Mother	No	8.9%
	Yes	16.9%
Disability	No	10.1%
	Yes	19.6%
SES	Low SES	22.7%
	Moderately Low SES	14.4%
	Moderate SES	8.9%
	High SES	5.0%
Category 1	No	7.9%
	Yes	16.1%
Parent Education	Less Than High School	24.0%
	High School or Some College	13.9%
	College or Some Grad. School	9.8%
	Graduate School	5.0%
Race & Ethnicity	White	11.1%
	Black	15.5%
	Other Race	11.8%
	Hispanic	10.8%

Younger children, those who turned four in late June, July, or August 1996, were 10 percentage points more likely to be retained than the children who turned four in September, October or early November 1995. Only 7.9 percent of the older children had been retained by 2001, but 18 percent of the younger children were retained. In 2001, after reviewing the effects of age differences on the progress of children who participated in Pre-K, the Office of School Readiness extended an option to parents of younger four year-olds to delay their child's Pre-K participation for a year, if the parents decided that it would be beneficial for the child. These data support providing parents with that option.

Children born to teenaged mothers are more likely to be retained by eight percentage points. One of the widest gaps in retention is related to the socio-economic status (SES) of the child's family (See Chapter One for more information on how SES is measured). Children from low SES households are almost 18 percentage points more likely to have been retained than children from high SES households. Another measure of poverty, eligibility for means tested federal assistance (Category 1), also shows a large and significant gap: 16 percent of the children in families who are classified as Category 1 were retained compared with 8 percent of those who did not come from Category 1 families.

Parental education made the greatest difference in whether children were retained or not. Having a parent that graduated from high school reduced the retention rate by 10 percentage points over children whose parents did not graduate from high school. If one parent graduated from college, another four percentage points were deducted from the rate.

The statistics in Table 2.B.1 indicate that family characteristics and children's age, gender, and ethnicity make a difference in retention rates. Most children, even those from the most impoverished backgrounds, were not retained, but living in poverty makes retention more likely. In the next section we explore some differences that program characteristics made in retention. These differences are much less dramatic than some of the differences based on parental education or SES. Also, our analyses indicate that different program characteristics affect different types of students in different ways, thus complicating efforts to make sweeping program improvements that work for all children.

Retention and Program Characteristics

In Table 2.C.1, the retention rates are presented for several program characteristics. These results do not adjust for any differences in child or family background characteristics. While the differences accurately reflect actual differences, programs that have large proportions of children from high SES families may appear to have lower retention rates, but may not in actuality when differences in the children and their families are controlled through more sophisticated statistical analysis, presented in the following section.

Table 2.C.1: 3rd Grade Retention Rates

		Percent Retention
Program Type	Local School System	13.7%
	Private Profit	11.0%
	Non-Profit	12.3%
Teacher Credential	Certified	12.5%
	CDA or CCP	11.0%
	Other Credential	11.8%
Teacher Education	Less Than High School	
	High School or Some College	11.9%
	College or Some Grad. School	12.0%
	Graduate School	14.3%
Belief	1.0 - 6.5	13.4%
	6.5 - 8.0	12.7%
	8.0 - 10.0	11.4%
Practice	1.0 - 6.5	13.3%
	6.5 - 8.0	11.4%
	8.0 - 10.0	12.5%
Curriculum	High Scope	13.2%
	Creative	14.6%
	Journey	7.5%
	Once Upon a Time	7.0%

The retention rate for children who attended Pre-K offered by local school systems is 13.7 percent. Eleven percent of the children who attended Pre-K centers run by private, for-profit organizations were retained. The retention rate for non-profit Pre-K centers fell between these two. Overall, retention rates did not differ significantly for children who were taught by teachers with different types of credentials. Children who were taught by Pre-K teachers with graduate degrees were retained at a higher rate than those children taught by teachers with less education. Pre-K teachers whose beliefs and practices fell closer to the adult-directed end of the scale (1-6.5) had higher retention rates than teachers whose beliefs and practices were more child-centered (8-10).

For this report, we analyzed curricula as a potentially important source of difference in children's retention rates and achievement. While the Pre-K classes used several national and a few locally and developed and state approved curricula, we chose to analyze the curricula that were used in ten or more study sites and for which at least 100 children had remained in the study sample. Four curricula, High/Scope, Creative, Journey, and Once Upon a Time, met the criteria and were analyzed separately. All other curricula are combined as an "Other" category. Retention rates varied considerably between students who were taught using different curricula, but as the next section will show, these differences were influenced significantly by the family background and personal characteristics of the children who were taught using one curriculum or another. For example, for two curricula, Journey and Once Upon a Time, not enough high-risk, high poverty children were served by study sites using these curricula to allow separate estimates on the retention rates for these children.

Analysis of Retention

The purpose of this analysis is to determine if any program characteristics that can be influenced directly by policy had a significant effect on retention rates by the time the children reached their fourth year of formal schooling. This information will allow program administrators to determine if a particular program option has been systematically associated with reducing or increasing retentions. If a program characteristic is found to be systematically related to reducing retention, then making programs with that characteristic more available to children should be considered. If a program characteristic is found to be systematically related to

increasing retention, then, following a "first, do no harm" credo would lead to reducing the availability of Pre-K sites with that characteristic.

For the purpose of this report, five program characteristics have been identified for analysis.

1. Type of organization providing the Pre-K services
    a. Local schools
    b. Private, for profit
    c. Not-for-profit
2. Type of curriculum
    a. High/Scope
    b. Creative
    c. Journey
    d. Once upon a time
    e. All other curricula for which GPKLS had fewer than 10 sites in the sample
3. Teacher credentials and experience
    a. Teachers with CDA or CCP
    b. Teachers certified to teach in the state of Georgia
    c. Teachers with related college degrees and/or other certification (e.g., Montessori)
4. Teacher education
    a. Teachers with high school degrees
    b. Teachers with college degrees
    c. Teachers with graduate degrees
5. Teachers' beliefs and practices
    a. Index of the extent to which teachers' beliefs and practices are child-centered

The analysis presented below relies on logistic regression to control for child and family characteristics. Each of the five program characteristics are examined controlling for the children's likelihood of being in a high-risk family, as determined by factors such as parental education, household income, and participation in means tested federal programs. In addition, gender and race are controlled, since prior research indicates that these characteristics are associated with systematic differences in children's school performance. Furthermore, all of the analyses include interactions between the program characteristic and risk (for example, Non Profit * p(Risk1)), to test whether each of the characteristics were more or less effective with high-risk children. The tables present marginal means or the average difference in retention rate associated with that particular program variation, controlling for all other variables in the regression.

Each of the program characteristics is entered separately into the analyses. The reason for this is that many program characteristics are strongly inter-related. For example, Pre-K programs in public schools rely almost exclusively on certified teachers, who have at least a college degree, and the High/Scope curriculum. When all of these factors are entered into a single analysis, the effects of each are confounded, making the analysis difficult to interpret and producing few significant effects. As the tables below show, few characteristics produce significant differences in retentions and when they do, further analysis was done to become confident that the difference was likely to be associated with the characteristic identified in the regression.

Table 2.D.1 Analysis of Impacts of Program Characteristics on Retention*

Type of Pre-K Program Provider	Retention
p(Risk1)	**0.095**
Black	**0.039**
Other Race	0.011
Sex	**0.043**
Private for Profit	-0.021
Private * p(Risk1)	-0.011
Non Profit	-0.012
Non Profit * p(Risk1)	0.085
Constant	**0.123**

Classroom Curricula	Retention
p(Risk1)	**0.099**
Black	**0.039**
Other Race	0.013
Sex	**0.043**
High Scope	0.021
Creative	0.039
Journey	*-0.049*
Once Upon a Time	*-0.049*
Constant	**0.122**

Teacher Certification & Experience	Retention
p(Risk1)	**0.023**
Black	**0.041**
Other Race	0.009
Sex	**0.034**
Teacher Years	-0.012
Teacher Yrs * p(Risk1)	-0.012
Certified	0.005
Certified * p(Risk1)	0.074
Certified * Years	0.011
Certified * Yrs * p(Risk1)	-0.012
Other Credentials	0.014
Other * p(Risk1)	0.045
Credential * Years	0.012
Cred * Yrs * p(Risk1)	-0.016
Constant	**0.125**

Teacher Education	Retention
p(Risk1)	**0.083**
Black	**0.038**
Other Race	0.008
Sex	**0.034**
Teacher HS Ed	-0.004
H.S. Ed * p(Risk1)	-0.500
Graduate Degree	-0.014
Graduate * p(Risk1)	0.098
Constant	**0.126**

Teachers' Beliefs and Practices	Retention
p(Risk1)	**0.092**
Black	**0.039**
Other Race	0.009
Sex	**0.035**
B & P * p(Risk1)	0.020
Belief & Practice	-0.007
Constant	**0.125**

Bold indicates statistical significance (p < .05)

The only program characteristic that appears to influence retention rates is curriculum. Children who participated in a Pre-K program that used the Journey curriculum or the Once Upon a Time curriculum appeared to be less likely to be retained than children in the other curricula, but not by a statistically significant amount (-4.9 percentage points for both, ns, $p < .05$). In separate tests of statistical significance, Journey and Once Upon a Time were associated with lower rates of retention than High/Scope and Creative. These results should be interpreted with a great deal of caution. When additional controls for the children's academic and communication ratings at Pre-K entry were added, neither curriculum significantly reduced the retention rate. Furthermore, these curricula were used exclusively by for-profit centers and few high-risk children participated in these Pre-K programs. Therefore, the evidence does not support the conclusion that these curricula were more effective in reducing retention rates for all students. A separate analysis was conducted to see if either Creative or High/Scope appeared to be more effective with high-risk children, but there were no meaningful or statistical differences.

Teachers' education, type of credentials, or beliefs and practices did not influence retention rates. Children who participated in Pre-K programs in public schools, private, for-profit centers, and not-for-profit centers were neither more nor less likely to have been retained, after controlling for risk, race, and gender.

Retention was influenced by the child's level of risk, race, and gender. The likelihood of being retained for a child from a very high-risk family was 9.5 percentage points higher than for a child with very low risk. African American children were 4.5 percentage points more likely to be retained than white children. Children of other races were neither more nor less likely to be retained than white children. Boys were 4.3 percentage points more likely to have been retained than girls.

Several other analyses were used, including hazard analysis and models with additional controls but none of the five program characteristics were associated with significant effects on retention.

In previous research, program differences that are directly controllable by policy have shown small or no differences on outcomes, such as retention. The findings from this study were consistent with prior studies. Thus, this report on the GPKLS offers little by way of evidence-based recommendations for policy changes, other than those made in previous reports, which are likely to affect the outcomes for children. These findings about retention indicate that none of the basic policy options that are creating variation in Pre-K services across Georgia are having consistently negative effects and should be eliminated as options. However, it would be useful to encourage greater use with higher risk children of at least two curricula that appear to lower retention rates for lower risk children. These results could be monitored for evidence of success. Offering choices for parents is an important feature of early childhood education programs, especially those for very young children. Also, it is important to offer flexibility for operators as long as the programs options do not appear to systematically increase or decrease the outcomes for children. The flexibility that is currently available to parents and operators does not appear to systematically influence the children's outcomes, positively or negatively. Therefore, it does not appear that reducing the options available would improve outcomes for children.

Chapter 3
Test Scores of Pre-K Participants

Previous research has shown that cognitive gains as measured by standardized test scores are associated with preschool experiences but are not sustained in later years. However, children who participated in early education interventions had better long term social outcomes. It should not be surprising to find that the test scores of children, all of whom participated in a Pre-K program four years before are not systematically different. All of the GPKLS children attended preschools as four year-olds that had many similar characteristics, such as class size, child to adult ratios, and using a recognized curriculum. Moreover, the variation in their experiences in school for four years were likely to have reduced the variance that could be attributed to differences in their Pre-K program.

In this chapter, the test scores of children who remained on grade level are analyzed. Only the children who were in the third grade in 2000-2001 were tested as a part of the Georgia statewide assessment program. Therefore, this chapter presents the scores for 1,991 children (66 percent of the children still in the study), who were on grade level in the third grade, who were not exempted from state testing by virtue of their individualized education plan (i.e. enrolled in special education), and for whom a test score was matched with their identification information. Approximately, 560 children who attended third grade in 2000-2001 were not able to be matched with test scores, some of whom were likely to have missed school during the testing period.

Test scores for four batteries of the Stanford 9 were analyzed: math, language arts, science and social studies. The average percentile scores for these tests were: 46.3, 47.8, 46.7, and 47.0, respectively. Previous research indicated that longer term effects were found with math and were less likely to have occurred with reading or language arts assessments. Few published studies of Pre-K effectiveness have used science or social studies assessments.

Test Scores and Family and Child Characteristics

Research has shown that children living in poverty and with other conditions that are often related to poverty are likely to perform less well academically. For the children in the GPKLS, the findings are similar. Table 3.B.1 shows the percentiles or average test scores by selected child and family characteristics. As seen, the oldest children did better on all four standardized tests, but older children consistently performed better in math. Differences from top to bottom were least noticeable for science and social studies and most pronounced for math and language arts. Females soundly outperformed males in language arts, but less so in the other subjects.

Students with disabilities performed from 7 to10 percentile points lower than students without disabilities. Students without disabilities were at or above the 50th percentile on all four test batteries. At least eleven percentile points separated the performance of low SES and high SES children on these tests. While moderately low SES children slightly outperformed low SES children, significant performance advantages were observed in moderate SES children and even more in high SES children. Children from families receiving federal means tested benefits scored approximately 7 percentile points lower than children from families not participating in these programs. Gaps of over twenty percentile points separated the performance of children of parents with less than high school educations from those who had at least one parent with a graduate degree. African American children scored approximately nine to eleven percentiles points lower than white children and somewhat lower than Hispanic children and children of other races.

Table 3.B.1: 3rd Grade Standardized Test Scores (Percentiles) by Child and Family Characteristics

		Math	Language Arts	Social Studies	Science
Age	4.0 - 4.2	44.9	46.7	45.6	45.4
	4.2 - 4.4	45.4	47.2	45.5	45.3
	4.4 - 4.6	46.6	47.5	48.1	47.3
	4.6 - 4.8	46.4	47.6	47.4	47.5
	4.8 - 5.0	47.6	49.8	48.2	47.9
Sex	Female	46.7	50.5	47.8	47.4
	Male	46.1	45.3	46.5	46.4
Teen Mother	No	51.3	53.4	52.9	52.1
	Yes	43.7	45.1	43.2	43.6
Disability	No	49.5	51.7	50.8	50.0
	Yes	41.8	41.6	40.9	42.8
SES	Low SES	42.0	43.9	41.6	42.8
	Moderately Low SES	43.7	45.0	44.3	43.8
	Moderate SES	49.7	51.5	51.0	50.5
	High SES	54.4	57.2	55.7	53.9
Category 1	No	50.3	51.9	51.4	50.7
	Yes	42.9	44.4	43.2	43.4
Parent Education	Less Than High School	37.6	36.7	37.9	38.3
	High School or Some College	43.7	44.8	44.2	44.3
	College or Some Grad. School	49.4	51.7	51.2	50.6
	Graduate School	56.3	59.1	57.3	56.6
Race & Ethnicity	White	50.2	51.6	50.8	51.8
	Black	40.8	42.2	41.4	39.8
	Other Race	48.2	49.0	50.4	47.5
	Hispanic	51.1	50.2	50.9	50.3

Test Scores and Program Characteristics

In Table 3.C.1, average scores for the four tests are presented for several program characteristics. These results do not adjust for any differences in child or family background characteristics. While the differences accurately reflect actual differences, programs that have large proportions of children from high SES families may appear to have higher average test scores, but may not in actuality when differences in the children and their families are controlled through more sophisticated statistical analysis, presented in the following section.

Table 3.C.1: 3rd Grade Standardized Test Scores (Percentiles) by Program Characteristics

		Math	Language Arts	Social Studies	Science
Program Type	Local School System	45.3	46.3	45.5	45.2
	Private Profit	47.1	49.5	48.6	48.0
	Non-Profit	47.6	47.8	47.6	48.4
Teacher Credential	Degreed or Credential	46.7	48.0	47.4	47.1
	CDA or CCP	42.7	44.1	43.4	44.2
	Other Credential	46.8	49.9	48.0	46.7
Teacher Education	High School or Some College	43.1	45.3	43.9	44.1
	College or Some Grad. School	46.6	48.1	47.6	47.3
	Graduate School	48.3	48.3	47.5	47.0
Belief	1.0 - 6.5	44.5	46.0	45.7	45.5
	6.5 - 8.0	46.8	48.0	47.6	47.3
	8.0 - 10.0	46.5	48.2	47.1	46.8
Practice	1.0 - 6.5	45.5	47.2	46.8	46.6
	6.5 - 8.0	46.8	48.0	47.1	47.2
	8.0 - 10.0	46.0	47.6	47.1	46.1
Curriculum	High Scope	45.2	46.6	46.1	45.5
	Creative	48.2	50.2	49.7	49.5
	Journey	50.2	50.5	49.1	50.1
	Once Upon a Time	47.6	50.6	48.0	47.6

Children who attended Pre-K programs run by private, for profit and not-for-profit organizations appear to perform slightly better on standardized tests than children from public school Pre-K classes. While children whose teachers had teaching certificates do not outperform those children whose teachers had bachelor or associate degrees in other fields, children in both groups perform better than those whose teachers had a CDA or CCP. Reflecting much the same pattern, children taught in Pre-K by teachers with college and graduate degrees outperformed the children taught by teachers whose highest level of education was a high school degree, even though lead teachers with a high school degree also had to have at least a CDA.

Children taught by teachers with adult-directed beliefs and adult-directed practices performed less well than those taught by teachers with more child-centered beliefs and practices. In this analysis, it appears that children taught using the Creative, Journey, and Once Upon a Time curricula outperform children exposed to the other curricula. However, all of these differences may reflect patterns of differences in the background and other characteristics of the children whose parents chose to enroll them in programs with these characteristics.

Analysis of Third Grade Test Scores

The purpose of the analysis of third grade test scores was to determine if any program characteristics that can be influenced directly by policy had an impact on the third grade test scores of the children who stayed on grade level. Program administrators and parents should use this information cautiously, since children who fell behind were omitted from the analysis. Since the analysis of retention showed few systematic impacts of program characteristics, the potential for retentions to bias the analysis was reduced but not eliminated.

Program administrators and parents may wish to focus scrutiny on sites that have characteristics associated with lower test scores, but restraint is urged if results indicate that a

program characteristic is shown to be associated with higher test scores. These effects may be reduced or eliminated when retained students' test scores are added to the analysis.

As was the case in the analysis of retention, five program characteristics have been analyzed.

1. Type of organization providing the Pre-K services
    a. Local schools
    b. Private, for profit
    c. Not-for-profit
2. Type of curriculum
    a. High/Scope
    b. Creative
    d. Journey
    e. Once upon a time
    f. All other curricula for which GPKLS had fewer than 10 sites in the sample
3. Teacher credentials and experience
    a. Teachers with CDA or CCP
    b. Teachers certified to teach in the state of Georgia
    c. Teachers with related college degrees and/or other certification (e.g., Montessori)
4. Teacher education
    a. Teachers with high school degrees
    b. Teachers with college degrees
    c. Teachers with graduate degrees
5. Teachers' beliefs and practices
    a. Index of the extent to which teachers' beliefs and practices are child-centered

The analysis presented below relies on regression (OLS) to control for child and family characteristics. Each of the five characteristics were examined controlling for a risk variable that combines several family characteristics, such as parental education, household income, and use of means tested federal programs, that place children at risk for not successfully completing school. In addition, gender and race are controlled, since prior research indicates that these characteristics are associated with systematic differences in children's school performance. Furthermore, all of the analyses include interactions between the program characteristic and risk (for example, Non Profit * p(Risk1)), to test whether the characteristic was more or less effective with high-risk children.

Each of the program characteristics was entered separately into the analyses. The reason for this was that many program characteristics are strongly inter-related. For example, Pre-K programs in public schools relied almost exclusively on certified teachers, who have at least a college degree, and the High/Scope curriculum. When all of these factors are entered into a single analysis, the effects of each are confounded, making the analysis difficult to interpret and producing few significant effects. As the tables below show, few characteristics produce significant differences in test scores and when they do, further analysis was done to become confident that the difference was likely to be associated with the characteristic identified in the regression.

Table 3.D.1: Analysis of 3rd Grade Standardized Test Scores*

Type of Organization	Math	Language Arts	Science	Social Science
p(Risk1)	**-10.64**	**-13.09**	**-9.87**	**-12.88**
Black	**-8.36**	**-8.46**	**-11.21**	**-8.07**
Other Race	-2.56	*-3.81*	**-4.92**	-1.00
Sex	-0.73	**-5.61**	-0.94	-1.51
Private for Profit	0.71	1.32	1.85	1.89
Private * p(Risk1)	-0.76	0.58	-3.41	1.67
Non Profit	2.15	1.21	2.24	2.44
Non Profit * p(Risk1)	-4.05	-6.12	-4.50	-5.55
Constant	**51.47**	**55.71**	**52.79**	**52.08**

Curriculum	Math	Language Arts	Science	Social Science
p(Risk1)	**-11.14**	**-13.55**	**-11.32**	**-13.25**
Black	**-8.31**	**-8.21**	**-11.14**	**-7.96**
Other Race	-2.26	*-3.55*	**-4.66**	-0.75
Sex	-0.80	**-5.62**	-1.02	-1.49
High Scope	-1.04	-2.72	-1.45	-0.64
Creative	1.06	0.63	1.41	2.70
Journey	2.28	-1.06	1.43	1.20
Once Upon a Time	-3.27	-3.65	-3.29	-4.16
Constant	**52.57**	**58.41**	**54.69**	**53.26**

Teachers' Credentials and Experience	Math	Language Arts	Science	Social Science
p(Risk1)	**-3.55**	**-16.14**	**-12.58**	**-17.88**
Black	**-8.77**	**-8.70**	**-11.52**	**-8.16**
Other Race	*-3.46*	**-5.59**	**-6.31**	-2.60
Sex	-0.70	**-5.51**	-0.83	-1.58
Teacher Years	-0.79	-0.84	-0.05	**-0.88**
Teacher Yrs * p(Risk1)	-0.67	-0.60	-1.24	1.23
Certified	1.51	-0.39	1.06	0.13
Certified * p(Risk1)	-7.59	2.59	1.47	4.67
Certified * Years	0.60	0.49	-0.28	0.52
Certified * Yrs * p(Risk1)	0.28	-0.82	1.06	-0.95
Other Credentials	3.45	1.43	-0.40	1.52
Other * p(Risk1)	-8.12	12.48	7.81	8.62
Credential * Years	0.52	0.67	0.23	0.50
Cred * Yrs * p(Risk1)	0.99	-0.98	1.14	-1.13
Constant	**51.99**	**56.16**	**53.71**	**53.02**

Teachers' Education	Math	Language Arts	Science	Social Science
p(Risk1)	**-12.44**	**-14.17**	**-11.38**	**-13.64**
Black	**-8.39**	**-8.03**	**-10.92**	**-7.40**
Other Race	*-3.33*	**-5.45**	**-5.84**	-2.27
Sex	-0.77	**-5.56**	-1.32	*-2.04*
Teacher HS Ed	-3.34	-2.04	-2.93	*-4.42*
H.S. Ed * p(Risk1)	7.52	5.44	3.73	5.55
Graduate Degree	0.77	0.20	1.00	-0.45
Graduate * p(Risk1)	1.20	0.29	**-9.47**	-4.01
Constant	**52.16**	**56.22**	**54.05**	**53.51**

Teachers' Beliefs and Practices	Math	Language Arts	Science	Social Science
p(Risk1)	**-10.93**	**-13.00**	**-11.76**	**-13.06**
Black	**-8.54**	**-8.18**	**-11.14**	**-7.66**
Other Race	*-3.57*	**-5.68**	**-5.88**	-2.50
Sex	-0.83	**-5.61**	-1.32	*-2.08*
B & P * p(Risk1)	**-3.30**	**-3.44**	-1.69	-2.56
Belief & Practice	0.40	0.45	0.24	0.47
Constant	**51.97**	**56.12**	**53.93**	**53.16**

Bold indicates statistical significance (p < .05)

Children from private, for profit and not-for-profit centers performed insignificantly better than children from public school Pre-K programs. Consistently, high-risk children from not-for-profit Pre-K classes appear to do worse on standardized tests but not to the extent that the differences were statistically significant.

As with retentions, certain curricula were significantly associated with test score differences. The results indicate that Creative has consistently better outcomes than the "Other" curricula but the differences are not statistically significant. In separate tests, children taught using Creative outperform children in Once Upon a Time classes in math, science, and social studies and High/Scope in language arts, science, and social studies. These effects are statistically significant ($p < .05$). However, high-risk children from Creative classrooms scored significantly worse than other high-risk children. Further complicating the interpretation, high-risk children served in High/Scope classes scored at least 10 percentile points better than other high-risk children in all four tests ($p < .05$). Again, recall that high-risk children were much more likely to be retained and therefore, are likely not to be included in the analysis of third grade test scores. However, since the differences did not occur systematically for all children, it may be better to inform Pre-K operators and parents about the benefits of High/Scope rather than pursuing regulatory solutions.

Teachers' characteristics appeared to have little influence on the third grade test scores. While the test scores for children taught by teachers whose highest level of education was high school were consistently below those of college-educated teachers, the differences were not statistically significant. Teachers with higher levels of experience teaching Pre-K appeared to be associated with lower performing students, but only for the science test was this statistically significant. Finally, for both language arts and reading scores, high-risk children taught in Pre-K by teachers with more child-centered beliefs and practices scored slightly worse. The effects of teachers reporting these beliefs and practices were negative but not statistically significant on other tests. Since the label "child-centered" is based on the teachers' self-reports, this may indicate that these teachers are not able to implement child-centered practices sufficiently well to have the beneficial effects that those practices could produce.

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Appendix A.

Sampling and Tracking and Missing Data Imputation

At the beginning of each year we make diligent efforts to locate and follow children participating in the study. This process entails contacting school district superintendents, school principals, teachers, and children's parents. Each year we may lose certain students (moving out of state, home schooling, etc.) but may also regain students who we were unable to locate the previous year or who may have moved back into the state. An effort is made to account for all qualified students from the original sample of children in the Pre-K year.

Another part of our sampling and tracking procedure each year has been to ensure that our current sample remains demographically similar to the original sample. If we find that we are more likely to lose a certain demographic characteristic (such as region) future analyses may be biased. Therefore, we compare demographics of our current sample with the original sample. We also collect as much data as possible from the students we locate. For the final year of the study, an increased effort was made to contact parents and the response rate for the parent survey substantially improved from previous years. A part of the tracking procedure has been to identify and implement procedures for handling missing data for some of the students.

The following section details:

1) the initial sampling in the first year of the study;
2) the process of locating and tracking students in the current year of the study; and
3) the comparison of demographic characteristics between the sample of students in each year (Pre-K, kindergarten, first grade, second grade and third grade).

1. Initial Sampling in First Year of Study

In the first year (1996-1997) of this longitudinal study of the lottery-funded Georgia Prekindergarten (Pre-K) Program, a sample of 220 Pre-K classes was randomly selected from a total of 3,037 possible Pre-K classes across Georgia. The sample of 220 classes was stratified by three variables: region of the state, organization type, and curriculum. The state was divided into five regions: (1) North Georgia, (2) Metro Atlanta, (3) Southwest Georgia, (4) Southeast Georgia, and (5) South Georgia (See Figure A1). Organization types included the following: (1) local, or public school systems and (2) private school entities. Finally, for sampling purposes, the following curricula were included: (1) Creative, (2) High/Scope, (3) Montessori, (4) locally developed, and (5) "no information," for classes where there was no available curriculum information on the initial database. The "no information" classes were later assigned one of the four curricula when that information was available.

As a result of the first year of data collection, the initial sample size was reduced to 203 classes and 4,189 students. Thirteen classes were removed from the study due to lack of cooperation with data collection procedures from the Pre-K year or in gaining access to information needed to follow-up with the children in 1997-98.

Another decision was made to exclude students from the study if they did not complete a full year of Pre-K. A few rules were established in order to make this decision. A child was **included** in our study if he or she met one of the following criteria:

(1) The child was rated by a Pre-K teacher at both the beginning and the end of the school year;

(2) The child was rated by a Pre-K teacher at the end of the year, and the entire class was missing beginning of the year ratings;
(3) The child was rated by a Pre-K teacher at the beginning of the year, and the entire class was missing end of the year ratings;
(4) The child was not rated at the beginning *or* the end of the Pre-K year, but the child was listed on an Office of School Readiness roster submitted in fall 1996, *plus* we received some piece of information at the end of the year confirming the child's enrollment (i.e., parent phone numbers submitted at the end of the year, attendance sheets received from the site, and/or parent telephone surveys that confirmed the child's full year enrollment).

After removing children who did not meet any of the above criteria, there were 3,639 students remaining in the study at the end of the Pre-K year.

2. Locating/Tracking Study Students in the Current Year

Data collection efforts for the fifth year of the study, during fall 2000, began by trying to locate students in their third-grade schools and classes (or alternative assignments). Efforts focused on information received in the previous year from principals, teachers, and parents as to where they expected children to attend school in 2000-2001. Additionally, lists were sent to public school superintendents in the fall of 2000 with the names of children for whom no school name was identified, but who did reside within a particular county the previous year and, therefore, would most likely attend a public school within that county. Superintendents were asked to provide the name of the school in which the child(ren) were enrolled. As a final attempt, a list of children's names and social security numbers was forwarded to the Georgia Department of Education requesting that student names be matched with enrollment data so that a school could be identified.

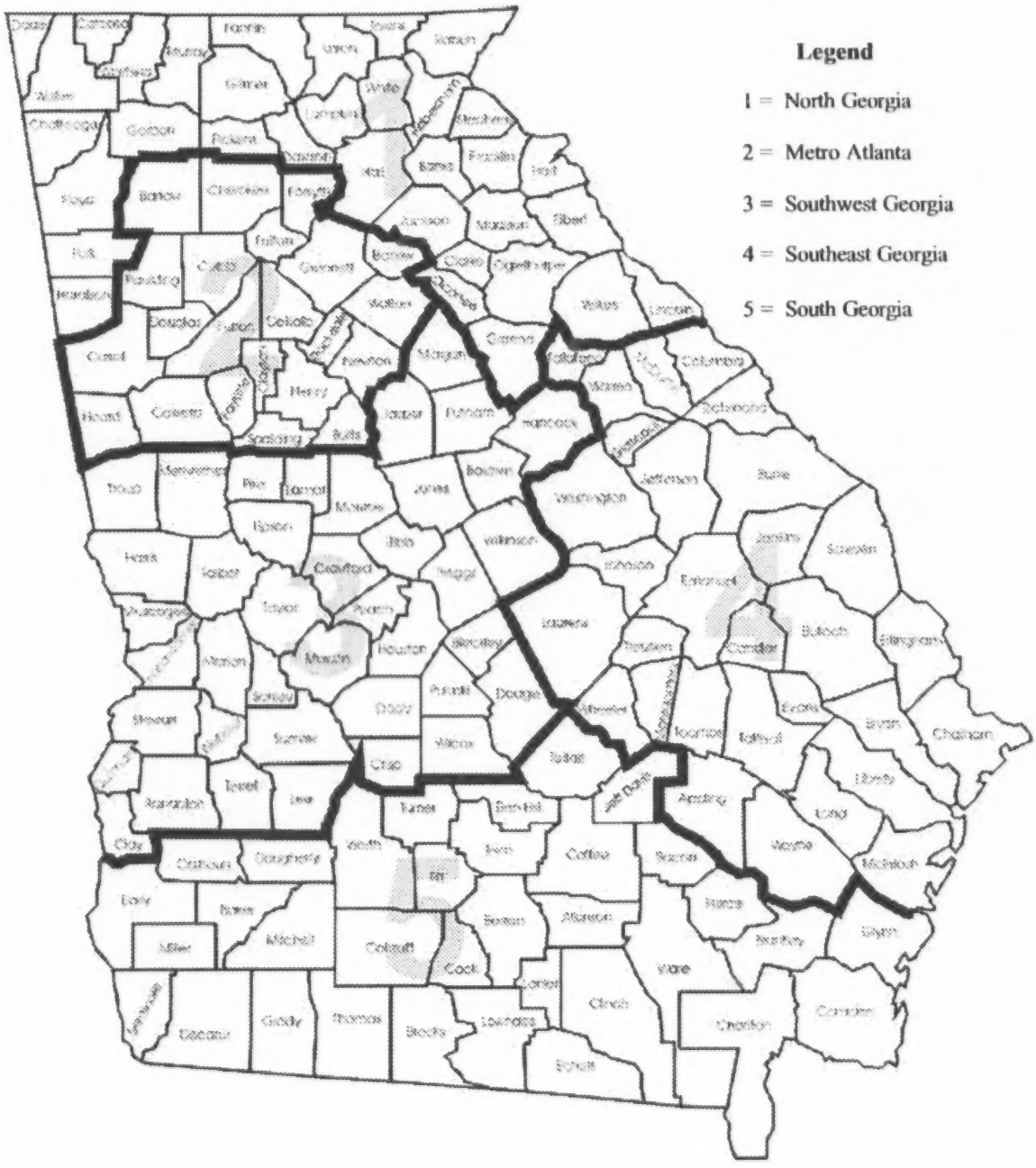
Once children were associated with a particular school, whether public or private, a list with those children's names was mailed to the principal of the elementary school. Along with the request to confirm the child's enrollment, the principal also was asked to identify the name of the third grade (or current) teacher for the child. Social security numbers were included with all children's names so that the correct child was referenced. After receiving confirmation that a child was enrolled in a specific classroom, the appropriate surveys were mailed to the students' current teachers.

The 3,639 children who were included in the sample of 203 Prekindergarten classrooms in the first year of the study translated into 3,201 students in 1,672 classrooms in the second year of the study (kindergarten year). In this year of the study (Year 5), a total of 3,001 students were located in 2,105 classrooms (see Table A1). This number does include students who were not located in prior years because we go back to the original Pre-K sample when we begin the locating process each year. The number (3,001) does not, however, include children who were located but either moved out of Georgia, participated in home schooling for the fifth year in our study, or died. Two hundred and thirty seven children were removed from the study because they either moved out of state, the parents asked that we remove the children from the study, the children were home schooled or died. We were unable to locate 401 students.

Table A1: Status of Children in Study

Status at Year End	4th Year of Study	5th Year of Study
Children Located	2989	3001
Deceased, Refusal	16	17
Out-of-State	149	201
Home Schooled	12	19
Unknown	490	401
Total	3656	3639

Figure A1: Counties within Metro Atlanta area contrasted with the rest of Georgia.



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3. *Comparison of Demographic Characteristics between Samples*

As mentioned earlier, we wanted to ensure that the sample of 3,001 students who were located in the fifth year of the study was similar to the original sample. For example, if 50 percent of the original sample was comprised of females, then 50 percent of the current sample should be comprised of females. Therefore, at the end of the fifth year we compared the demographics of students for whom we had valid rating forms at the beginning of the Pre-K year with the demographics of students for whom we had valid rating forms at the end of each of the other years (Pre-K, kindergarten, first-grade, second-grade, and third grade). Though we expected to lose children from the original sample (moving, home schooling) we wanted to be confident that our current sample (3,001) was demographically similar to the original sample (3,639).

Table A2: Pre-K Attrition Bias

Variable	Pre-K Beginning		Pre-K End		Kindergarten End		1st Grade End		2nd Grade End		3rd Grade End	
Number of Students with Valid Ratings	3490		3061		2201		2267		2407		2389	
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Region			450	14.7			330	14.6	355	14.7	375	15.7
No. Georgia	486	13.9	1382	45.1	344	15.6	1016	44.8	1071	44.5	1065	44.6
Metro Atl.	1669	47.8	431	14.1	938	42.6	375	16.5	377	15.7	360	15.1
SW Georgia	480	13.8	502	16.4	371	16.9	348	15.4	359	14.9	344	14.4
SE Georgia	520	14.9	296	9.7	331	15.0	198	8.7	245	10.2	245	10.3
So. Georgia	335	9.6			217	9.9						
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Organization Type	1435	41.1	1346	44.0	1068	48.5	1027	45.3	1107	46.0	1051	44.0
Public (LSS)	348	10.0	268	8.8	216	9.8	229	10.1	210	8.7	245	10.3
Not for Profit*	1707	48.9	1447	47.3	917	41.7	1011	44.6	1090	45.3	1093	45.8
Private for Profit												
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Curriculum	2350	67.3	2094	68.4	1545	70.2	1565	69.0	1659	68.9	1565	65.5
High Scope	439	12.6	319	10.4	284	12.9	280	12.4	302	12.5	326	13.7
Creative	701	20.0	648	21.2	372	16.9	422	18.6	446	18.6	498	20.8
Other												
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Race	1632	52.8	1464	53.1	1179	53.9	1191	52.8	1304	54.4	1264	55.7
White	1167	37.8	1030	37.4	819	37.4	839	37.2	875	36.5	800	35.2
Black	290	9.4	262	9.5	189	8.6	226	10.0	217	9.1	207	9.1
Other	401	–	305	–	14	–	11	–	11	–	118	–
Missing												
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Sex	1578	50.8	1399	50.5	1099	50.0	1158	51.1	1184	49.2	1158	49.6
Male	1527	49.2	1372	49.5	1098	50.0	1109	48.9	1222	50.8	1176	50.4
Female	385		290		4	–			1	–	55	–
Missing												
	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%	Number	Valid%
Category 1	1598	51.6	1389	50.8	1046	52.3	1059	51.1	1136	51.8	1099	50.7
Yes	1501	48.4	1345	49.2	954	47.7	1015	48.9	1055	48.2	1067	49.3
No	391	–	327	–	201	–	193	–	216		2223	–
Missing												
Average School SES	2.981		2.99		2.947		2.991		2.970		2.974	

*Not-for-Profit sites include Government Not-for-Profit, Private Not-for-Profit, and Headstart

Characteristics of many of the demographics are similar for all four rating periods. For example, at the beginning of the Pre-k year, 53 percent of the sample was white, 38 percent was black, and 9 percent was other, while at the end of the third-grade year 56 percent was white, 35 percent was black and 9 percent was other. Similarly, whereas 51.6 percent of the sample were children whose families qualified for category one services during the Pre-K year, 50.7 percent of the sample in first grade were children whose families qualified for category one services during the child's Pre-K year.

The percentage of children in the Metro Atlanta region decreased somewhat (from 48 percent in the Pre-K year to 45 percent at the end of the third-grade year), while the percentage of children from southwest Georgia and northern Georgia increased (14 percent and 14 percent respectively in the Pre-K year to 15 percent and 16 percent respectively at the end of the third-grade year). Similarly, the percentage of children who were instructed using the High/Scope curriculum in Pre-K year decreased slightly between beginning of Pre-K and end of third grade (67 percent to 66 percent), while the percentage of children instructed with Creative curriculum increased slightly (13 percent to 14 percent).

One area where the original sample differed slightly from the current sample was organization or school type. Even though the majority of the current sample attended public school during the 1998-1999 school year, many of these children had originally attended a private Pre-K. Therefore, we increased our efforts to find children who had attended a private for profit Pre-K but who moved to a public kindergarten or first grade. At the beginning of the Pre-K year, 49 percent of children for whom we had a valid rating form attended a private for profit Pre-K. In the kindergarten sample, 41 percent of children for whom we had a valid rating form attended a private for profit Pre-K. However, by the end of the third-grade year that percentage had increased to 46 percent. This increase may be due primarily to students who continue kindergarten in a private setting but move to public school for the first grade.

Though some small differences did exist, we were able to conclude that significant demographic differences do not exist between our original Pre-K sample and the current sample.

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